

PowerShot A30/A40

Digital Camera

English Edition



1 GENERAL
DESCRIPTION OF
PRODUCT

2 TECHNICAL
DESCRIPTION

3 REPAIR
INSTRUCTION

4 PARTS CATALOG

5 DIAGRAMS

6 APPENDIX

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Application

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SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine CANON replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes. Critical parts are marked with \triangle in the schematic diagrams.
2. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
4. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

4-1 Leakage Current Cold Check

- 1) Unplug the AC cord and connect a jumper between the two prongs on the plug.
- 2) Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between $1M\Omega$ and $5.2M\Omega$. When the exposed metal does not have a return path to the chassis, the reading must be ∞ .

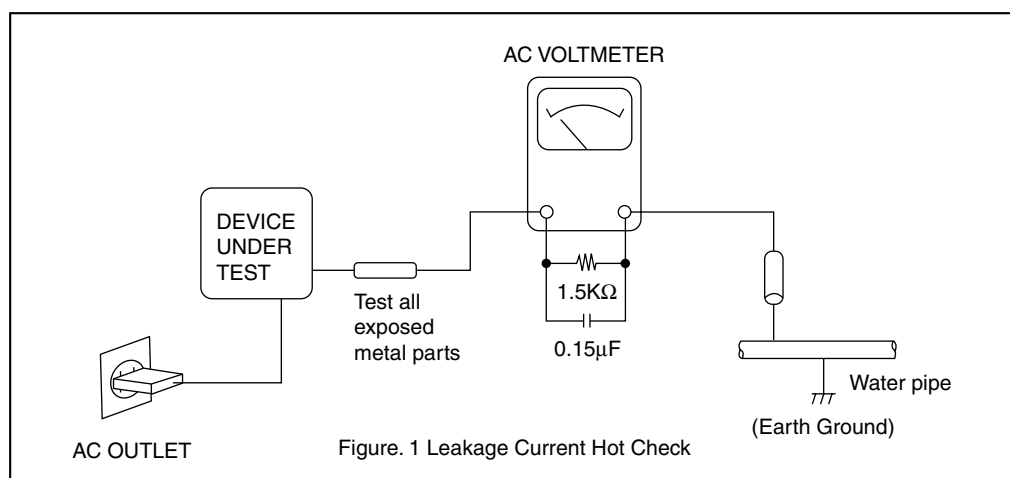
4-2 Leakage Current Hot Check

- 1) Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
- 2) Connect a $1.5K\Omega$ 10 watt resistor, paralleled by $0.15\mu F$ capacitor, between each exposed metallic parts on the unit and a good earth ground such as a water pipe, as shown in the figure below.
- 3) Use an AC voltmeter, with $1000\Omega/\text{volt}$ or more sensitivity, to measure the potential across the resistor.
- 4) Check all exposed metallic parts of the cover (Cable connection, Handle bracket, metallic cabinet. Screwheads, Metallic overlays, etc), and measure the voltage at each point.
- 5) Reverse the AC plug in the AC outlet and repeat each of the above measurements.
- 6) The potential at any point should not exceed 0.75V RMS.

A leakage current tester (FLUKE MODEL : 8000A equivalent) may be used to make the hot checks.

Leakage current must not exceed 0.5 milliamp.

In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and corrective action must be taken before returning the instrument to the customer.



CHAPTER 1. GENERAL DESCRIPTION OF PRODUCT

CONTENTS

1	Development Background	
1-1	Development Objectives -----	1-1
1-2	Product Concept -----	1-1
1-3	Design Concepts -----	1-3
1-4	Spec. comparison between new and prior models -----	1-4
2	Features*	
2-1	High Image Quality -----	1-6
2-2	Full Features / Operation ease -----	1-7
2-3	Accessories and Software -----	1-10
3	Exterior	
3-1	Exterior Photos -----	1-13
3-2	6-dimensional diagram -----	1-15
3-3	Nomenclature -----	1-16
3-4	UI Display -----	1-17
4	Specifications	
4-1	Camera Specifications -----	1-21
4-2	System Requirement -----	1-27
4-3	Accessory Specifications -----	1-28
5	System	
5-1	Accessories' Compatibility -----	1-29
5-2	System Diagram -----	1-31

* Please refer to Technical Guidance for PowerShot A20/A10 (TI-00906) P.5–P.18

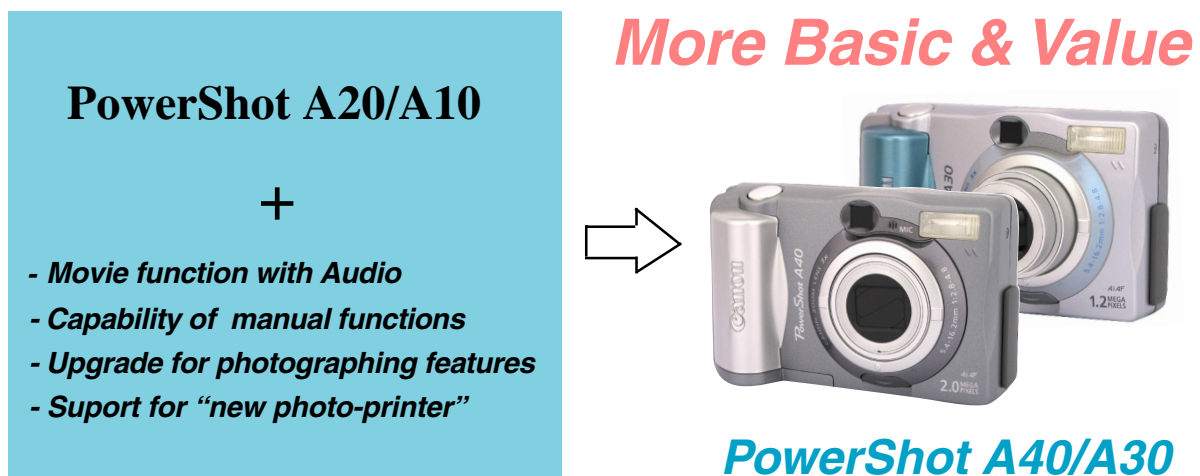
1 Development Background

1-1 Development Objectives

Beginning with the ultra compact 2-megapixel 3x zoom IXY DIGITAL 300 introduced in Spring 2001, followed in succession by the PowerShot A20/A10 and IXY DIGITAL 200, all four models adopted primary color filters and the new image engine which provides exceptional color reproduction, and have received high acclaim for their image quality.

Even the PowerShot A20/A10 has a friendly design intended for a wide range of users, but they are especially suited to general use because of the high image quality and advanced functions exceptional for their class, and support for the popular AA-size batteries, which have resulted in very good sales. The PowerShot A20/A10 is a product for which high-volume sales can be expected, because of the positioning in the mid-price range, so continuing to maintain a stable share in the market for this class of camera is indispensable to the business strategy.

The PowerShot A40, with the same basic capabilities as the PowerShot A20, also incorporates advanced photographic features provided with the PowerShot G2 and PowerShot S40/S30, and further evolves the design so the above objectives can be achieved with a digital camera having even greater imaging capabilities for the price. Furthermore, to target those users looking to pay a lower price, the PowerShot A30 with a 1.3-megapixel-grade CCD (active camera component pixels) will be manufactured as a successor to the PowerShot A10.



1-2 Product Concept

The PowerShot A40/A30 is intended as successor to the basic product concepts of the PowerShot A20/A10, targeting the first-time digital camera user looking to simply enjoy a digital camera or to minimize expense. Our design idea is to provide enhanced functionality through the theme of More Basics & Value, by providing “high image quality,” “advanced features with comfortable operation” rounded out with “conservative design” and “system accessories and software” as the product concepts.

Also, to promote a new culture of simple printing for digital camera users, the PowerShot A20/A10 supports the so called Camera Direct {{Direct Print?}} feature that provides easy printing with the CP-10 Card Photo Printer. The PowerShot A40/A30 will continue the same support, and also be compatible with the CP-100 Photo Printer now under development, which supports A6-size printing for credit-card to postcard size prints.

High Image Quality

- Primary color filters and signal processing algorithms to get the most of these features
- High-resolution, 1/2.7-type approx. 2 megapixel CCD (PS A40) and approx. 1.2 megapixel CCD (PS A30)
- High-resolution retractable 3X zoom lens
- R**- New image capturing optics brings out high resolution (PS A40).
- Intelligent AE determines optimum exposures in all photographic situations
- R**- High-precision white balance (Auto + Five preset positions)
- R**- Wide range of ISO-equivalent speed settings (Auto/ISO 50/100/200/400 equivalent)
- Noise reduction feature for high S/N
- Equipment for "Superfine mode" compares with RAW mode
- Totally round aperture for better background blur

Full Features / Operation ease

- N**- Color Effect Modes (Vivid color, Neutral color, Soft, Sepia and Black & White) are provided
- N**- Direct print function for dedicated printers (CP-10/CP-100)
- R**- Movie recording and playback with audio*(selectable pixel size from QVGA and Q²VGA)
*It is impossible for PS A30 to record audio
- R**- AF Frame (3-point) auto selection (AiAF) and center single-point selection (AF)
- R**- Selectable of evaluative metering and spot metering
- N**- "Macro", "Snap" and "Landscape" are available in the focus zone
- N**- Shutter speed is allowed from 15 sec. to 1/1500 sec.
- N**- Enabling for On/Off selection of AF-assist light
- R**- Enabling for manual settings (aperture value and shutter speed).
- R**- AF lock function enables fixed focus shooting
- N**- Built-in flash with five flashing modes
- N**- Magnified playback for convenient image confirmation (from approx. 2X to 10X zoom)
- R**- Eleven-language international GUI support
- R**- Self-timer photography (selectable from 2sec. or 10 sec.)
- N**- Reset of all settings by one-touch operation
- Concentrated camera controls on the back
- Digital zoom function changes viewing angle continuously (approx. 7.5X when used in combination with optical zoom (PS A40), approx. 6X when used in combination with optical zoom (PS A30))
- Stress free operation with 1.7 sec. interval shooting
- Built-in flash provides the range of 4.2 m shooting (wide angle), also slow-syncro-shooting
- Use of widely available size AA battery (primary:alkaline, secondary:NiCd/NiMH)
- Real-image optical zoom viewfinder
- Total of nine image quality modes (3 recording pixels X 3 compression ratio)
- Continuous shooting enables 2.5 images/sec.
- Rec.-review function (instant erase if unnecessary)
- High speed image feed on playback
- Selectable of video output format (NTSC/PAL)
- High-Speed Image Transfer on USB Interface

R : Equipping for the cameras launched in autumn 2001(PS G2, PS S40/S30).

N : Evolutive features compared to PS A20/A10.

Saving Design

- Power-saving and space-saving, small-package new digital signal processing IC and CPU
- Low-temperature, polysilicon 1.5-inch LCD monitor with power-saving backlight
- Space-saving, new four-blade lens cover built-in
- High-performance red-eye reduction with power-saving LED
- Power-saving design enables approx. 1000 images to be recorded

System Accessory / Application Software

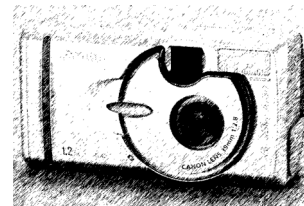
- N**- Tele conversion lens for taking 252 mm (35 mm film format equivalent) tele-photo angle shots
(With bayonet type new conversion lens adapter.)
- Wide Converter for taking 24.5mm (35mm format equivalent) wide-angle shots
- R**- Waterproof case good to 30 m underwater (renewal)
- Compact power adapter also compatible with the IXY DIGITAL 200/300 and PS A20/A10
- Nickel hydride battery and Battery charger
- R**- Full featured application softwares
 - Canon Image Gateway* compliance for image upload, album creation, on-line photo printing, etc.
 - ZoomBrowser EX 3.2 (Win)/ImageBrowser 2.2 (Mac) featuring improved ease of operation
 - Photorecord 1.2 (Win) for easy layout and printing for many pictures
 - PhotoStitch 3.1 for creating precise panoramic pictures
 - RemoteCapture 2.2 for remote picture-taking through a PC
 - Twain Driver 4.1 / WIA Driver 4.1 (Win).
 - Plug-in module 4.1 / USB mounter 1.2 (Mac).
 - RAW Image Converter 1.2 for processing RAW images.
 - Apple QuickTime 5.0.
 - ArcSoft PhotoImpression / VideoImpression (PS A40 only).
 - CP-10 PrinterDriver.

**for Japanese market only*

R : Equipping for the cameras launched in autumn 2001(PS G2, PS S40/S30).
N : Evolutive features compared to PS A20/A10.



1-3 Design Concepts

- Friendly, neat design to attract a wide range of users
 - Simple, stylish form
 - Shape fitted to the hand
- Further evolved from the PowerShot A20/A10
 - Differences (grip, round mirror tube)
 - Bayonet lens attachment system for easy attachment and removal
- Effective distinction of PowerShot A40/A30
 - PowerShot A30: cheerful and friendly
 - Bright silver finish (giving a bright, soft impression)
 - PowerShot A40: distinguished from competition by high-grade impression
 - High-grade metallic finish (gray metal with weighty impression)





1-4 Spec. comparison between new and prior models

■ PowerShot A40 and PowerShot A20

		PowerShot A40	PowerShot A20
			
CCD		1/2.7 type 2M (effective) , about 2.1M (total)	←
Color filter		Primary color filter	←
Lens(focal length 35mm film equivalent)		5.4-16.2mm (35-105mm) F2.8-4.8	←
Optical zoom		3X	←
Digital zoom		2.5X	←
Optical viewfinder		Real image type	←
LCD monitor		1.5" low temp.p-si TFT	←
AF		Selectable 3 focusing points (AiAF) or 1 (Center) , with AF lock	Selectable from 3 focusing points
Normal shooting range		76cm-∞	←
Macro shooting range	W	16-76cm	←
	T	26-76cm	←
Shutter		mechanical shutter + electronic shutter	←
Shutter speed		15-1/1500 sec	1-1/1500 sec
Light metering method		Evaluative/Spot	Evaluative
Exposure compensation		±2.0EV (1/3EV step)	←
ISO equivalent speed		Auto/50/100/200/400	Auto
	W	76cm-4.2m	←
Flash	T	76cm-2.5m	←
	macro	26-76cm	←
White balance		Auto + Preset (5 positions)	Auto + Preset (4 positions) , with BW
Shooting method		Auto/Program/Manual/Stitch -assist/Movie	Auto/Program/Stitch -assist
Focus		Macro/Snap/Landscape	Macro/Landscape
Photo effect		Vivid/Neutral/Low sharpening/Sepia/BW	×
Continuous shooting		2.5 images/s	←
Movie		320×240 about 10 sec, 160×120 about 30 sec (with audio)	×
Recording media		CF (Type I)	←
Recording format		DCF (DPOF)	←
Compression		SuperFine/Fine/Normal × L/M/S (9 pattern)	←
Recording pixels	L	1600×1200	←
(still)	M	1024×768	←
	S	640×480	←
Enlarged playback		about 2- 10×(scrolling possible)	about 2.5 ×
Direct print		supported (CP-10/CP-100)	supported (CP-10)
Interface		USB/image/audio	USB/image
Battery		AA alkaline ×4, AA NiMH ×4, Compact power adapter	←
Dimensions (W×H×D)		110.3×71.0×37.6	←
Weight		250 g	←

■ PowerShot A30 and PowerShot A10

		PowerShot A30		PowerShot A10	
CCD		1/2.7 type 1.2M (effective) , about 1.3M (total)			←
Color filter		Primary color filter			←
Lens(focal length 35mm film equivalent)		5.4-16.2mm (35-105mm) F2.8-4.8			←
Optical zoom		3X			←
Digital zoom		2.5X			←
Optical viewfinder		Real image type			←
LCD monitor		1.5" low temp.p-si TFT			←
AF		Selectable 3 focusing points (AiAF) or 1 (Center)), with AF lock		Selectable from 3 focusing points	
Normal shooting range		76cm-∞			←
Macro shooting range	W	16-76cm			←
	T	26-76cm			←
Shutter		mechanical shutter + electronic shutter			←
Shutter speed		15-1/1500 sec		1-1/1500 sec	
Light metering method		Evaluative/Spot		Evaluative	
Exposure compensation		±2.0EV (1/3EV step)			←
ISO equivalent speed		Auto/50/100/200/400		Auto	
Flash	W	76cm-4.2m			←
	T	76cm-2.5m			←
	macro	26-76cm			←
White balance		Auto + Preset (5 positions)		Auto + Preset (4 positions) , with BW	
Shooting method		Auto/Program/Manual/Stitch -assist/Movie		Auto/Program/stitch -assist	
Focus		Macro/Snap/Landscape		Macro/landscape	
Photo effect		Vivid/Neutral/Low sharpening/Sepia/BW			×
Continuous shooting		about 2.5 images/s			←
Movie		320×240 about 10 sec, 160×120 about 30 sec			×
Recording media		CF (Type I)			←
Recording format		DCF (DPOF)			←
Compression		SuperFine/Fine/Normal × L/M/S (9 pattern)			←
Recording pixels	L	1280×960			←
	M	1024×768			←
	S	640×480			←
Enlarged playback		about 2- 10× (scrolling possible)		about 2.5 ×	
Direct print		supported (CP-10/CP-100)		supported (CP-10)	
Interface		USB/image		USB	
Battery		AA alkaline×4, AA NiMH×4, Compact power adapter			←
Dimensions (W×H×D)		110.3×71.0×37.6			←
Weight		250g			←

2 Features

2-1 High Image Quality

●New image capturing optics brings out high resolution (PS A40)

The PowerShot A40 uses the same CCD as the PowerShot A20, but with its characteristics improved by partial modification of the image capturing optics, resulting in better resolution than the PowerShot A20.

●High-precision white balance (Auto + Five preset positions)

With the PowerShot A40/A30, the whole screen is divided into many blocks from which RAW calculation data for white balance is collected, to allow precise control.

Also, as with the PowerShot G2/S40/S30, the Fluorescent Lamp preset white balance position is subdivided into two settings, called Fluorescent Lamp and Fluorescent Lamp H, for a total of five setting positions. Recently, fluorescent lamps have appeared with a variety of color hues, composed of many high and low color temperature objects. The single Fluorescent Lamp white balance setting is unable to support all of these variations. The Fluorescent Lamp position now supports relatively lower color temperatures such as “white” and “daylight white”, and the Fluorescent Lamp H position supports relatively higher color temperatures such as “daylight color”. The regular light bulb position is also used for incandescent-colored fluorescent bulbs.

Types of Fluorescent Light	White Balance Preset Position
Three-wavelength type fluorescent light designed to mimic incandescent light	Tungsten
Daylight white fluorescent light, white fluorescent light, daylight white three-wavelength type fluorescent light	Fluorescent
Daylight fluorescent light, daylight three-wavelength type fluorescent light	Fluorescent H

Table 2-1 Types of fluorescent light and white balance preset position

●Wide range of ISO-equivalent speed settings (Auto/ISO 50/100/200/400 equivalent)

The PowerShot A40/A30 user can select ISO sensitivity equivalent to film ratings of ISO 50, 100, 200 and 400, just as one would select a film speed for a silver-halide camera according to the photographic conditions. The low-sensitivity ISO 50 setting is best for still subjects unaffected by a slow shutter, or subjects in a bright environment where there is no need to worry about camera shake, because of its superior noise characteristics. On the other hand, while the ISO 400 setting has the disadvantage of lower S/N, it is appropriate for low-light conditions where a strobe cannot (or should not) be used, or when a fast shutter speed is needed.



Taken by ISO 50 (Outdoor)



Taken by ISO 400 (Indoor / No flash)

Photo 2-1 Characteristics comparison between ISO 50 and ISO 400

2-2 Full Features / Operation ease

● Color Effect Modes (Vivid color, Neutral color, Soft, Sepia and Black & White) are provided

The PowerShot A40/A30 includes the same color modes as the PowerShot G2 and PowerShot S40/S30, plus an additional Soft mode, providing five modes available for selection.

Also, the mode is now selected by a special-purpose (Exposure Control, WB, Color Effect, Single Image Erase) button instead of the mode dial, so color effects can be used in ways that were impossible before, such as in photostitching or movies. Table 2-2 shows the contents and effects.

Photo Effect	Description	Effect
Vivid color	Emphasizes contrast and color intensity	Produces a vivid and sharply-defined image
Neutral color	Reduces contrast and color intensity	Produces a subdued, plain image
Low sharpening	Reduces edge's emphasis	Produces a mild image
Sepia	Adds sepia toning to the color information	Creates an old-fashioned appearance
Black & White	Sets the color gain to "0," producing a black & white image	Produces a binary image with sharp contrast; used for text

Table 2-2 Contents and Effects of Color Effect Setting

● Direct print function for dedicated printers (CP-10/CP-100)

The PowerShot A40/A30 includes the Direct Print function, which provides high quality prints by connecting the camera via dedicated cable to Canon's

CP-10 Card Photo Printer or CP-100

Photo Printer, newly developed for postcard-size prints.

All printing operations are performed by the camera controls, including selection of border/borderless and adjusting the print area to match the image aspect ratio when creating borderless credit-card-size prints. The print area can be aligned relative to three sides. Credit-card-size printing capabilities include full-size label prints or eight copies of the same image on one sticker sheet.

The new image engine in the camera provides the high-speed color processing calculations for printing that are normally performed by driver software in the PC.

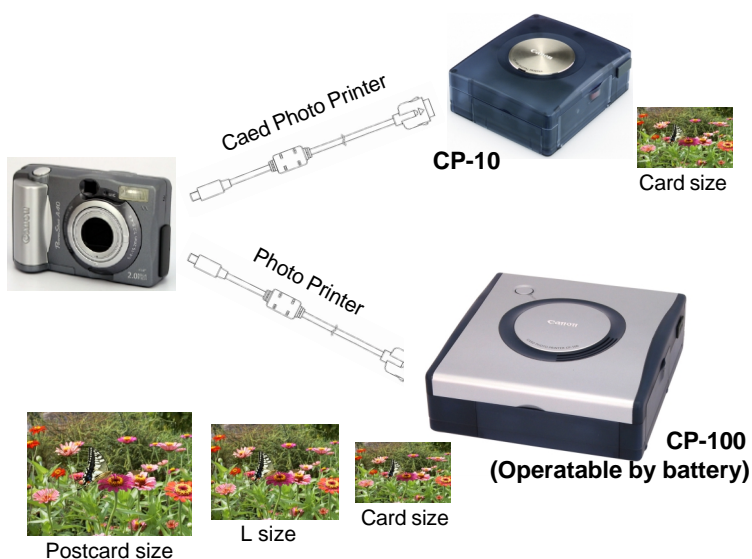


Fig. 2-1 Camera direct print

● Movie recording and playback with audio (selectable pixel size from QVGA and Q²VGA) (It is impossible for PS A30 to record audio)

The PowerShot A30/A40 can record movies in QVGA (320 × 240 pixels) and Q²VGA (160 × 120 pixels) formats at 20 frames/second (only the PS A40 records sound). Up to ten seconds recording is possible in QVGA, and up to 30 seconds in Q²VGA format.

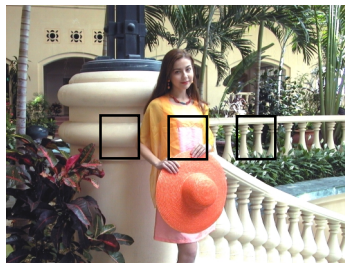
The focus, exposure, WB and zoom settings are set at the start of recording, and are used until finished recording. While recording, the available time remaining is displayed on the LCD.

The AVI-format files recorded consist of Motion JPEG image data and monaural WAVE sound data.

** When the remaining capacity of the CF is less than the buffer memory capacity, recording can continue until the time determined by the remaining capacity of the CF.*

- **AF Frame (3-point) auto selection (AiAF) and center single-point selection (AF)**

The PowerShot A40/A30 incorporates both the 3-point AiAF method in which the camera automatically determines the proper AF frame from three measurement points, and the standard AF method that uses a single center point, so the user can select the best method depending on photographic conditions.



When AF frame is selected, frame turns on to green.

Photo 2-2 3-point AiAF

- **Selectable of evaluative metering and spot metering**

In the PowerShot A40/A30, a spot metering function has been added to the averaging light metering method employed by the PowerShot A20/A10. The averaging method divides the screen into many blocks, allowing the camera to determine the optimum exposure setting from various complex lighting factors such as the light exposed in each block, subject position, brightness, background and foreground lighting and reflected light. Supplementing this method, the spot metering method measures the light only at the center of the field.

- **“Macro”, “Snap” and “Landscape” are available in the focus zone**

Added to the PowerShot A40/A30 is a Snapshot mode optimized for snapping pictures of people 1.5 to 2.5 meters from the lens. This mode joins the Macro mode for close-up photography of subjects 16 cm (26 cm in telephoto) to 76 cm from the lens, and the Distance mode for landscape photography of subjects 5 m or further from the lens.

These distance ranges minimize the time required for the AF system to determine the correct focal distance.

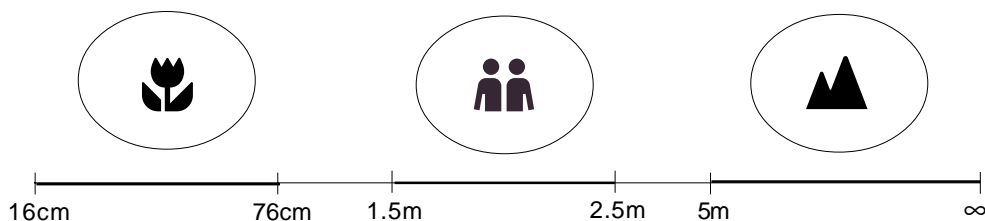


Fig. 2-2 Each focusing zone

- **Shutter speed is allowed from 15 sec. to 1/1500 sec.**

The PowerShot A40/A30 provides a 15-second long-exposure shutter speed, the longest level available in this class of camera (with shutter-speed priority). Combining this speed with the F2.8 aperture setting provides photos with a maximum of EV 1 (ISO 100 equivalent), permitting photography in dark environments without a strobe.

Also, with the fastest 1/1500-second shutter speed, fast-moving subjects can be photographed with minimal blurring.

- **Enabling for On/Off selection of AF-assist light**

Many of the PowerShot series are equipped with an assist light to ensure proper autofocus when ambient brightness is below a certain level. However, when photographing animals in a dark environment, they may react to the AF assist light by running away, preventing the desired photo from being taken in such situations.

The PowerShot A40/A30 therefore includes the capability to turn the AF assist light on and off, so that photos can be taken without it in situations like the above.

*When the surrounding light level is extremely low, the AF function may be unable to determine the proper focus. In such cases, the focus is fixed at a specific point.

● Enabling for manual settings (aperture value and shutter speed)

The PowerShot A40/A30 provides the capability for manual exposure settings, in which the user selects the shutter speed and iris value (2 levels) as desired, so the user can completely override the camera's automatic controls. This capability is most suitable in cases that cannot be handled by auto exposure, such as when taking photos under irregular lighting conditions, such as when photographing fireworks, and for intentional exposure settings when striving to obtain special effects.

When the strobe is enabled with manual exposure settings, full luminance is provided.

● AF lock function enables fixed focus shooting

The PowerShot A40/A30 allows locking AF by pressing the AF Lock button (Macro/Snap/Distance/ /AF Lock) when the shutter button is pressed halfway and after the AE/AF processing is finished.

Also, in previous models, the AF Lock setting was canceled after each picture was taken, but in the PowerShot A40/A30, it remains enabled until certain operations* are performed, making possible continuous photography with the same focus setting.

** Pressing the AF Lock button again, zooming, LCD off and changing photographic mode*

● Built-in flash with five flashing modes

The strobe built into the PowerShot A40/A30 can be set to five lighting modes: auto, auto red-eye reduction, on/off, red-eye reduction on and slow synchro, according to the photographic situation.

● Magnified playback for convenient image confirmation (from approx. 2X to 10X zoom)

During playback, the displayed image can be magnified with continuous zoom from two to ten times. Also, by pressing the SET button when setting magnification, the magnification steps in three preset ratios of 2.5, 5 and 10x.

Magnified images can be scrolled to view a desired region.



<Original>



<10X>

Photo 2-4 Magnified playback

● Eleven-language international GUI support

The LCD menu on the PowerShot A200/A100 supports eleven languages, expanding the number of native-language environments for the camera. The following languages are supported.



- English
- Deutsch
- Français
- Nederlands
- Dansk
- Suomi
- Italiano
- Norsk
- Svenska
- Español
- 日本語

● Self-timer photography (selectable from 2sec. or 10 sec.)

The PowerShot A40/A30 adds a 2-second selection to the 10-second timer provided previously. The 2-second setting is useful as a substitute for an external release to avoid camera shake on a tripod mount.

● Reset of all settings by one-touch operation

The PowerShot A40/A30 includes a function to return all user settings made on the LCD to their default values. By pressing the menu button for five seconds, the reset dialog appears, and clicking OK executes the reset.

2-3 Accessories and Software

● Tele conversion lens for taking 252 mm (35 mm film format equivalent) tele-photo angle shots (With bayonet type new conversion lens adapter.)

The zoom lens in the PowerShot A40/A30 performs as the equivalent of a 35- to 105-mm lens in a 35-mm film camera, but the TC-DC52 teleconversion lens has been developed to extend support for longer distance photography.

The TC-DC52 expands the lens focal distance by about 2.4x, resulting in the equivalent of a 252-mm lens in a 35-mm film camera (or up to an equivalent of 630 mm with digital zoom on the PowerShot A40, and 504 mm on the PowerShot A30).

Teleconverters can therefore provide a photographic magnification range of over 10x using only optical magnification: from the equivalent of a 24.5-mm lens in a 35-mm film camera when using the WC-DC52 wide converter, to the 252-mm equivalent performance with the TC-DC52 teleconverter.

To install the teleconversion lenses, the newly designed LA-DC52N conversion lens adapter is required, but because a new bayonet attachment system is employed, attaching and removing can be done with one touch, so operation is greatly improved.

**The optical viewfinder is not usable when a teleconverter is attached, so the LCD must be used instead. Also, the strobe is not usable because its light is obstructed by the teleconverter.*

● Waterproof case good to 30 m underwater (renewal)

The PowerShot A40/A30 fits into the specially designed WP-DC200s Waterproof Case, submersible to 30 meters for diving and snorkeling.

This waterproof case was developed based on the WP-DC200 case for the PowerShot A20/A10, so it can be used with these models as well.

**We intend to publish information later about the special technologies used in the waterproof case.*

● Full featured application softwares

Purchasers of the PowerShot S40/S30 introduced in Autumn 2001 receive various services on the Canon Image Gateway website established by the cooperation of Canon Inc. and Canon Sales Inc. Through this service, numerous version upgrades have been provided, starting with the ZoomBrowser EX (SCD 7.0). Also, support for the CP-10 was added to PhotoRecord.

This describes mainly the functions added to ZoomBrowser corresponding to the Canon Image Gateway, and PhotoRecord support for the CP-10 (differences in the application software bundled with the PowerShot A20/A10).

■ Canon Image Gateway* compliance for image upload, album creation, on-line photo printing, etc.

PowerShot A40/A30 purchasers can use the Canon Image Gateway website by registering as members, to receive the following services :

- Image Upload Service
- Image Online Album Service
- Stored Image Printing Service
- (•Service to transfer stored images to standby screen of cell phone) (under consideration)
- etc.

■ ZoomBrowser EX 3.2 (Win) and ImageBrowser 2.2 (Mac) enhanced convenience
The following functions are used with the PowerShot A40/A30.

○ Image Uploading

PowerShot A40/A30 users can store their own images on the CIG website.

- Images can be edited as a web album.
- Images can be published for users and their friends.
- Prints can be ordered from the print service.

Images are easily uploaded to CIG using ZoomBrowser EX/ImageBrowser.

- Users can register simply using ZB/IB.
- Selected images (and sounds) can be easily uploaded.
- Automatically download images set for transfer by the camera, then upload to CIG.
- File size can be adjusted before sending, and comments can be attached.

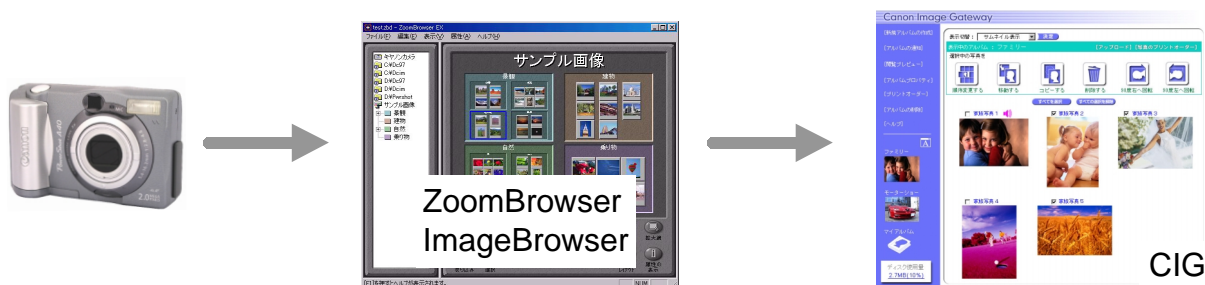


Fig. 2-3 Pictures upload to CIG

○ Auto Start function

When the camera is connected, ZB/IB can be started automatically. When started, a dialog is displayed and the following actions can be selected:

- Automatically download images (All, or those specified for printing or sending)
- Display images in the camera
- Have the camera take a picture (RemoteCapture)

When downloading is automatically selected, the following actions can be selected from a dialog when finished:

- Display as slide show (if printing is specified by slide show, printing continues)
- Print
- Create an e-mail
- Upload images to CIG



Fig. 2-3 Automatic Launch Action function

■ PhotoRecord 1.4 (Win) and ImageBrowser 2.2 (Mac) support for CP-10

To answer the call to print from a PC to the CP-10 with image size matched to the CP-10 standard and label paper, this capability has been added to the previous versions: PhotoRecord 1.4 (Win) and ImageBrowser 2.1 (Mac).

Printing performance has also been improved.

○ When the Canon CP-10 is selected as the printer to use, the following three modes are selectable:

1) Layout (same as PR/IB normal layout mode)

- Layout any number of images, in any position and size.
- (PR only) Insert picture frame and background.
- Insert characters at any position and size.
- If enabled by ZB/IB, insert the date, etc.
- Prints are borderless by default. Borders can be enabled by setting margins.

2) Standard Printing (One image is printed on a CP-10 standard sheet)

- Select bordered/borderless
- Change cropped area of image
- Enter any characters
- If enabled by ZB/IB, insert the date, etc.

3) Sticker Printing (printing eight images on a CP-10 sticker sheet)

- Different images can be printed on the eight stickers, or the same image on a sheet

○ Other printing function enhancements

- Support for new BJ printers and borderless printing function
- Added index printing function
- (PR only) Shortened the time for images to appear after starting

■ Remote Capture

The following functions are added to this version since the previous version:

- Light metering system setting
- AF Frame setting
- ISO sensitivity setting
- Assist Light on/off setting

■ CP-10 Printer Driver prints images from a PC to the CP-10

The newly developed CP-10 Printer Driver enables printing images from a PC to the CP-10. This allows images from Canon digital cameras prior to the PowerShot Pro90 IS to be printed on the CP-10 through the PC.

Additionally, when combined with the bundled PhotoRecord program, print mode selection, image quality adjustment and image trimming can be performed easily.

3 Exterior

3-1 Exterior Photos

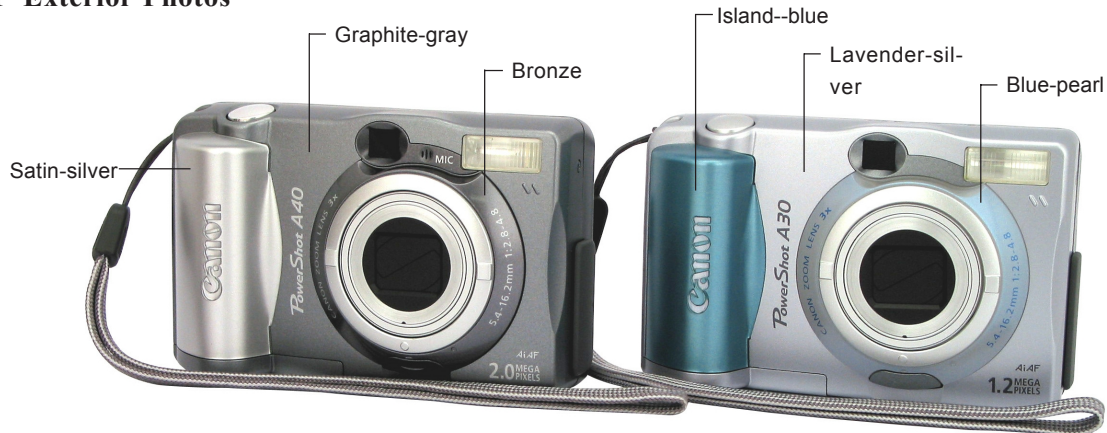


Photo 3-1 PowerShot A40 front

Photo 3-2 PowerShot A30 front



Photo 3-3 PowerShot A40 front
(set-up lens)

Photo 3-4 PowerShot A30 front
(set-up lens)



Photo 3-5 PowerShot A40 rear

Photo 3-6 PowerShot A30 rear

** These photos have slightly different exterior from mass-production model because of prototype.*



Photo 3-7 PowerShot A40 top



Photo 3-8 PowerShot A30 top



Photo 3-9 PowerShot A40 side



Photo 3-10 PowerShot A30 side



Photo 3-11 PowerShot A40/A30 operation components



Photo 3-12 Teleconverter TC-DC52



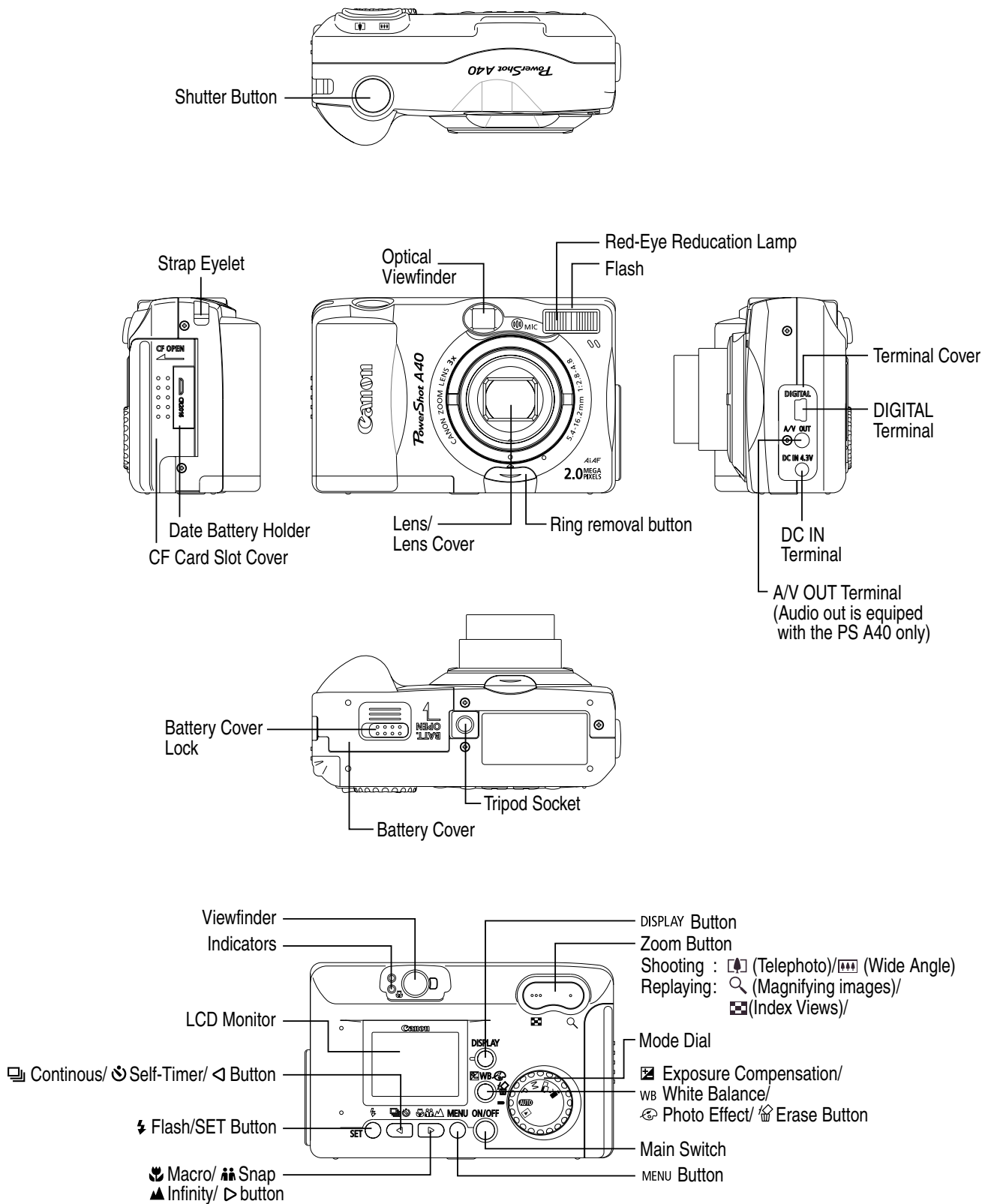
Photo 3-13 Conversion Lens Adapter LA-DC52

3-2 6-dimensional diagram



* The size of PowerShot A30 is the same as the PowerShot A40.

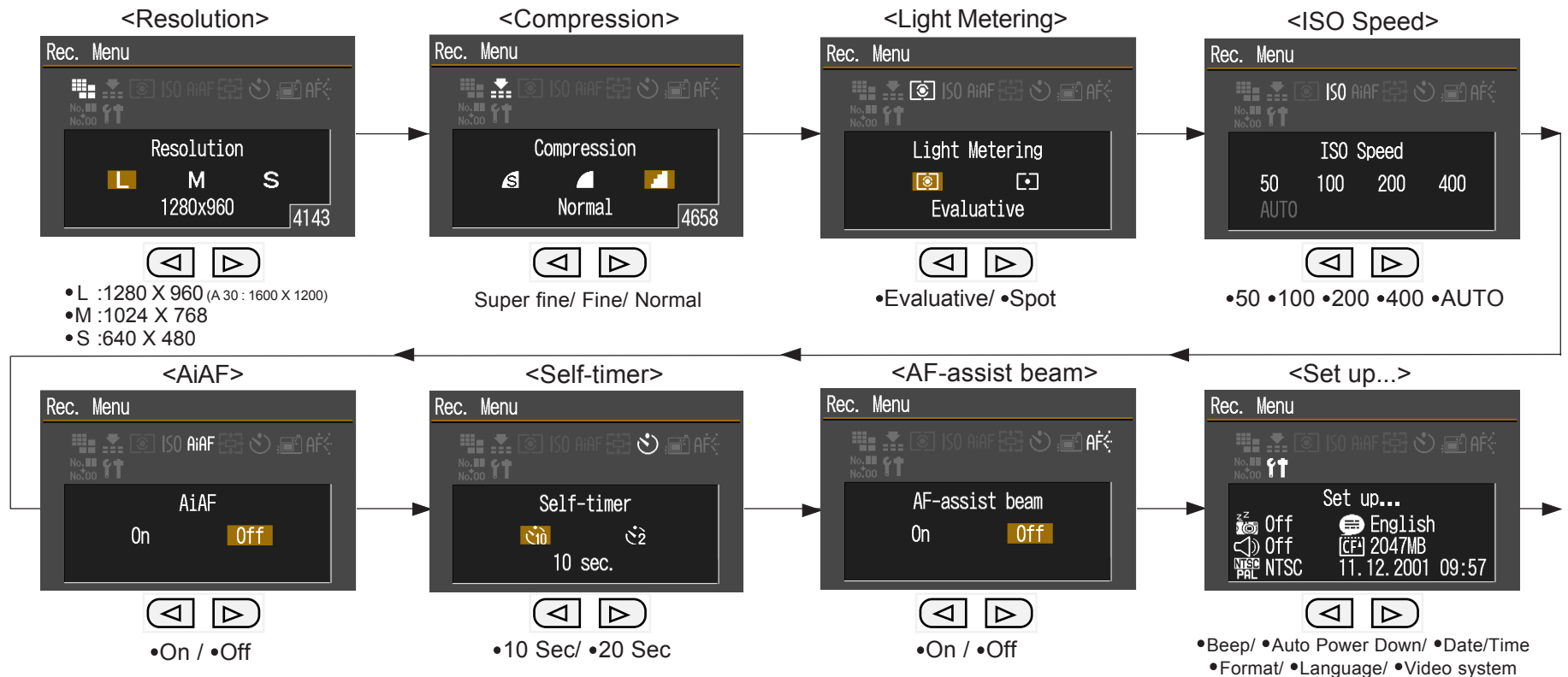
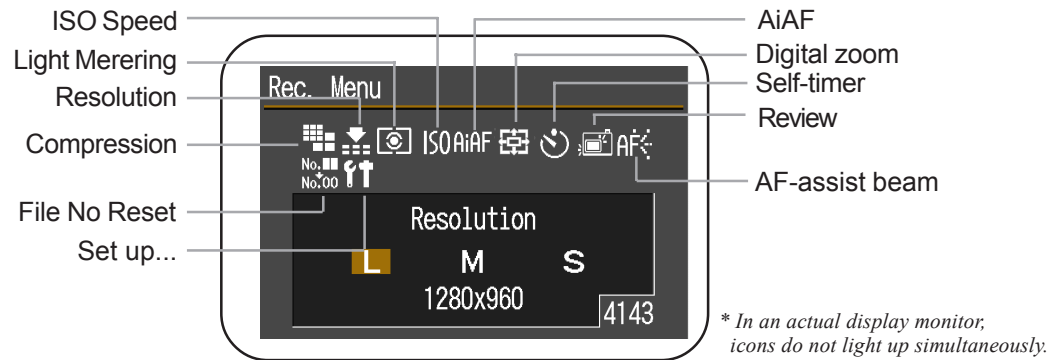
3-3 Nomenclature

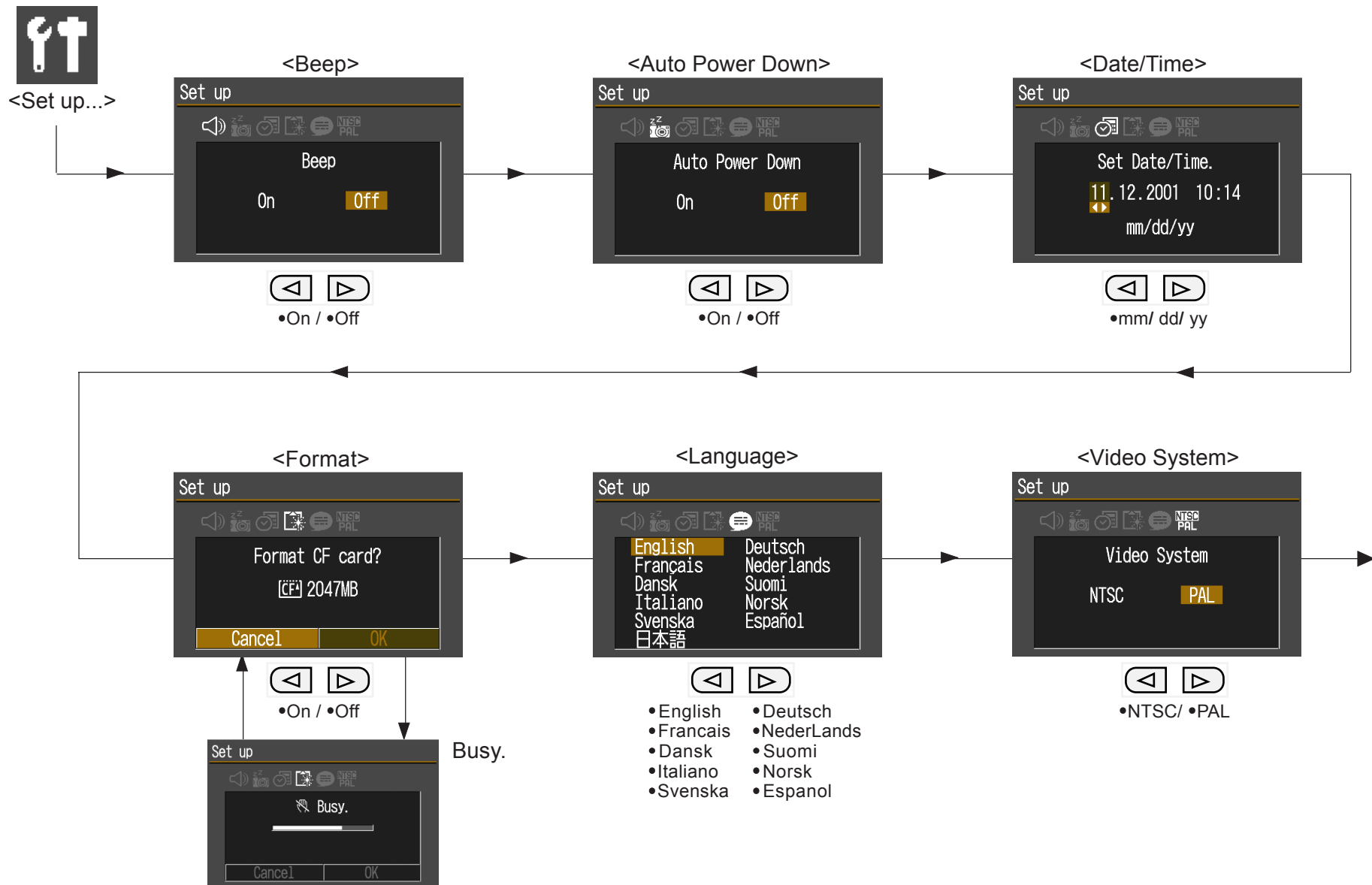


* With the PowerShot A30, the model name displayed in front changes to A30 from A40, and the number of pixels (Lower light corner) changes to 1.2 from 2.0.

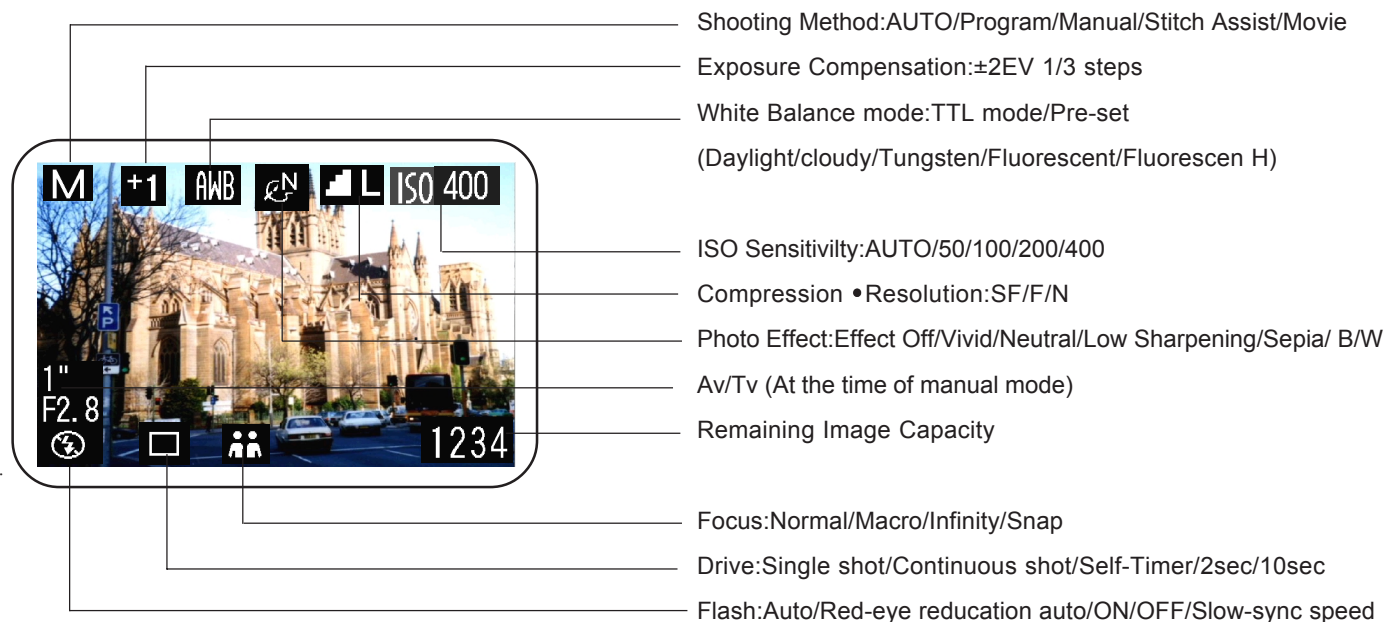
3-4 UI display

■ Rec. Menu

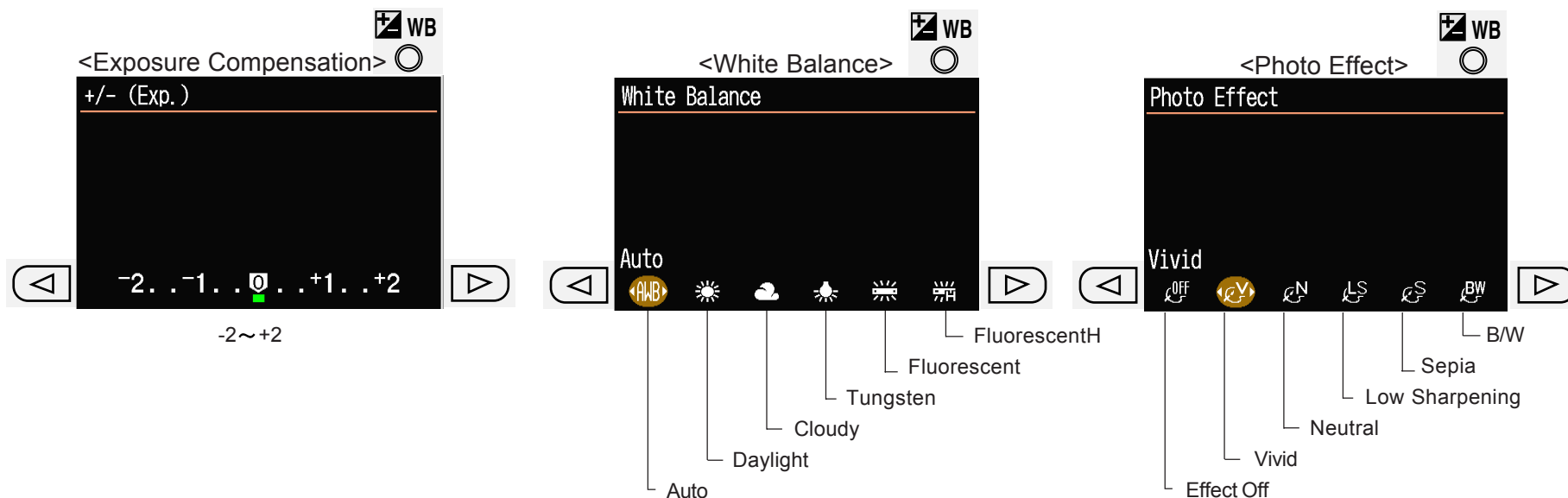




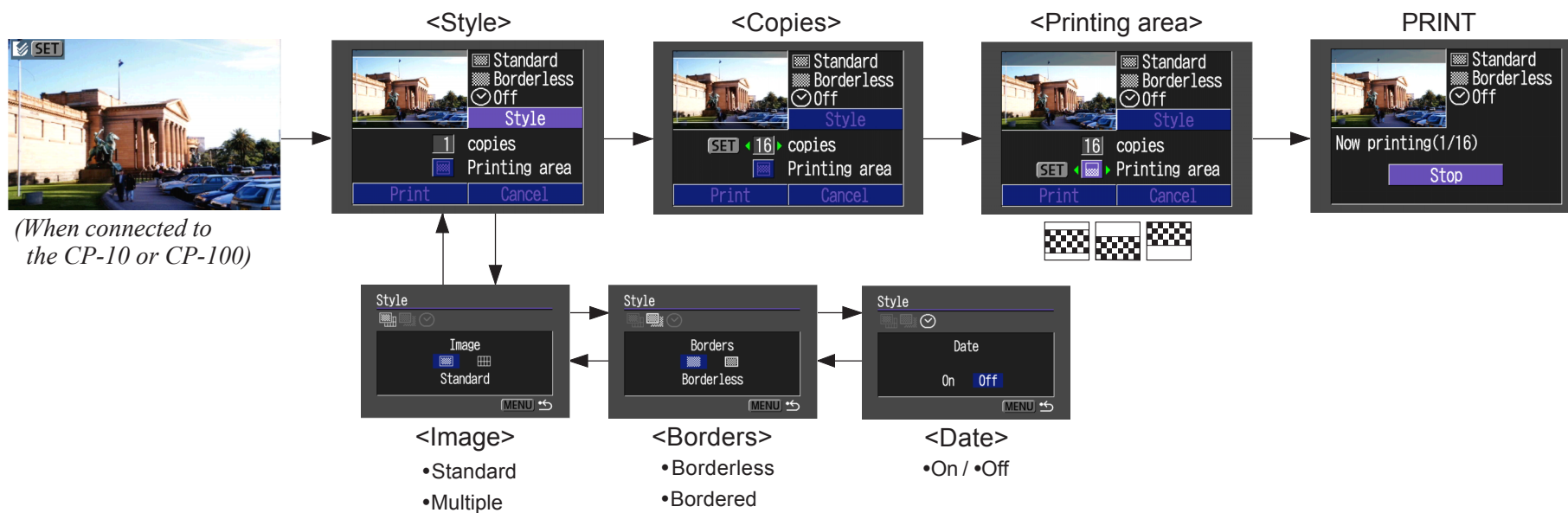
■ Information during shooting



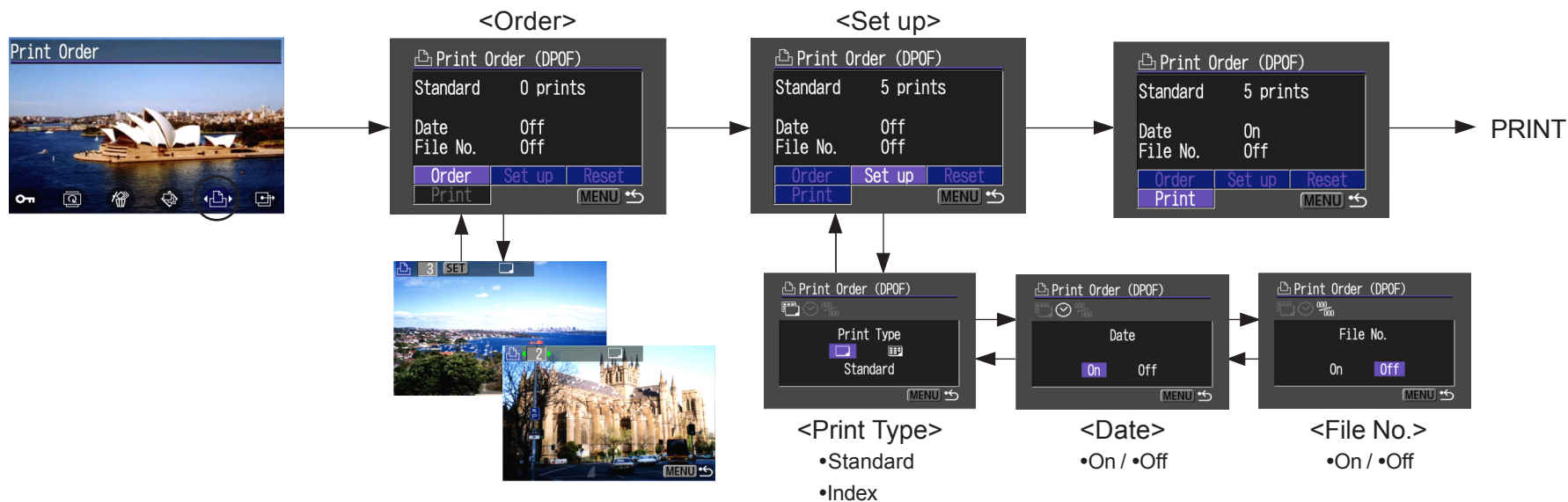
*The actual monitor display differs.



■ Set up print



■ DPOF



4 Specifications

4-1 Camera Specifications

	(PowerShot A40)	(PowerShot A30)
<Camera effective pixels>	Approx. 2 million	Approx. 1.2 million
<CCD>		
-Reading format	Interline	←
-Image size	5.36 (H) X 4.05 (V) mm (0.21 X 0.16 in.) equivalent to 1/2.7-inch size	5.28 (H) X 3.97 (V) mm (0.21 X 0.16 in.) equivalent to 1/2.7-inch size
-Unit cell size	3.275 (H) X 3.275 (V) micron (0.129 X 0.129 m-in.)	4.1 (H) X 4.1 (V) micron (0.16 X 0.16 m-in.)
-Total pixels	Approx. 2.1 million (1,688 X 1,248)	Approx. 1.3 million* (1,363 X 972)
-Filter array	Primary color filter (Bayer)	←
<Lens>		
-Focal length	5.4 (W) - 16.2 (T) mm (35 (W) - 105 (T) mm : 35mm film equivalent)	
-f/number	2.8 (W) - 4.8 (T)	
-Lens construction	9 pieces in 7 groups (including 1 aspherical lens)	
<Focusing range> (Measured from tip of lens)		
-Normal	76 cm (2.5 ft.) -infinity	
-Macro	16 cm (0.53 ft.) (W) / 26 cm (0.87 ft.) (T) - 76 cm (2.5 ft.) *Max.shooting area Wide : 162 X 120 mm (6.4 X 4.7 in.) Tele : 92 X 69 mm (3.6 X 2.7 in.)	
-Snap	1.5 m (5.0 ft.) - 2.5 m (8.3 ft.)	
-Infinity	5 m (17 ft.) - infinity	
<Optical viewfinder>		
-Type	Real-image optical zoom viewfinder	
-Magnification	0.31 (W) - 0.93 (T)	
-Coverage	Vertical : 80% Horizontal : 80%	
<LCD monitor>		
-Type	Low-temperature polycrystalline silicon TFT color LCD	
-Effective pixels	117,600 (490 (H) X 240 (V))	
-Display size	38 mm diagonal (1.5 inch)	
-Coverage	100%	
<Focusing>		
-Control system	TTL AiAF (3 focusing points) / TTL AF (1 focusing point) (Focus lock is available.)	
-Focusing points	3 focusing points or 1 focusing point (center) (Selectable)	
<Exposure control>		
-Light Metering method	Evaluation (Linked with focusing point) / Spot	
-Exposure method	Program AE / Manual	
-Exposure compensation	±2.0EV (at every 1/3-stop)	

<Aperture and shutter>

- Shutter type Mechanical shutter and electronic shutter
- Shutter speed 15 - 1/1,500 sec.
(15 - 1.3 sec. shutter is available in Manual mode.)
(Slow shutter of 1.3 sec. and more operates with noise reduction.)
- Aperture range W : f/2.8 - 8.0 / T : f/4.8 - 13.4

<White balance>

- Mode TTL auto white balance, pre-set white balance
(Available settings : Daylight, Cloudy, Tungsten, Fluorescent or Fluorescent H)

<Flash (Built-in)>

- Operation modes Red-eye reduction auto, Auto, On, (Off), Red-eye reduction on, Slow-syncro.
- Flash range 0.76 - 4.2 m (2.5 - 14 ft) (W) / 0.76 - 2.5 m (2.5 - 8.3 ft) (T)
(When sensitivity is set to ISO100 equivalent.)
- Flash syncro. speed 1/30 sec. or faster (Normal) / 15 sec. or faster (Slow-syncro.)
- Recycling time 10 sec. or shorter (full flash, battery voltage = 6 V)

<Shooting specifications>

- Shooting modes Auto / Program / Manual / Stitch assist / Movie
- Photo effects Vivid color / Neutral color / Low sharpening / Sepia / Black & White
- Continuous shooting modes Approx. 2.5 images/sec. (at Large / Fine mode and LCD monitor is OFF)
Number of shooting pictures

	L/SF	L/F	L/N	M/SF	M/F	M/N	S/SF	S/F	S/N
PSA40	5	7	14	9	14	26	19	28	50
PSA30	7	10	20	10	15	29	22	32	56

- Self timer Operates with 2 or 10 seconds countdown. (Selectable)
- ISO equivalent speed Auto, ISO50, ISO100, ISO200 and ISO400
(At Auto setting, camera automatically adjusts speed in the range of ISO50 to ISO150 equivalent.)
- Digital zoom PS A40 : 2.5 X (Maximum of 7.5X zoom is available when combined with optical zoom.)
PS A30 : 2 X (Maximum of 6X zoom is available when combined with optical zoom.)
- Shutter release from PC Use of "Remote Capture" software (included) when connected USB cable
- Camera wake-up time/Release time lag (sec.)

Mode	Finder	Camera wake-up time		Release time lag
		PS A40	PS A30	
Shooting	EVF	3.6	3.6	0.08
	OVF	2.5	2.5	0.05
Playback	-	2.1	2.1	-

* *Varies with shooting modes.*

- Shooting interval (*right table)

Shooting Mode	Finder	Focus Position	Lens Position	Shooting Interval (sec.)	
				PS A40	PS A30
Auto	EVF	Normal	Wide	1.7	1.5
			Tele	2.2	2.0
		Macro	Wide	1.9	1.8
			Tele	2.6	2.4
	OVF	Normal	Wide	1.7	1.6
			Tele	1.9	1.8
		Macro	Wide	1.8	1.7
			Tele	2.2	2.1
Manual	EVF	(AF lock)		1.3	1.1

* *For the actual shooting interval, the shutter speed must be added to the above data.*

<Recording specifications>

- Compression mode Super Fine, Fine or Normal
- Number of recording pixels Large : 1,600 X 1,200 (PS A40) / 1,280 X 960 (PS A30)
Medium : 1,024 X 768
Small : 640 X 480
Movie : 320 X 240 (20bps) Approx. 10 sec.
160 X 120 (20bps) Approx. 30 sec.

-File format

Design rule for Camera File system (DCF (Exif 2.2))*

* "DCF" is an abbreviation of "Design rule for Camera File system" standardized by Japan Electronic and Information Technology Industries Association (JEITA), however a use of this abbreviation is allowed in Japan only due to trademark rights. Exif 2.2 records shooting parameters useful for the image correction processing performed at the time of printing.

-Recording format

Digital Print Order Format (DPOF) Version 1.1

Still image : JPEG

Movie : AVI (Image data: Motion JPEG, Audio data: WAVE [monaural])

(Audio recording is available on PS A40 only.)

-Storage media

CompactFlash™ (CF) card (Type I)

-Storage capacity

Still (PS A40)

	L / SF	L / F	L / N	M / SF	M / F	M / N	S / SF	S / F	S / N
File Size	957KB	611KB	302KB	450KB	294KB	155KB	208KB	141KB	79KB
FC-8M	7	11	24	16	24	46	35	50	87
FC-16M	15	24	48	32	49	92	70	99	172
FC-32M	31	49	99	67	102	189	143	206	353
FC-64M	64	100	200	135	205	379	288	415	707
FC-128M	128	200	401	271	412	760	577	831	1417

Still (PS A30)

	L / SF	L / F	L / N	M / SF	M / F	M / N	S / SF	S / F	S / N
File Size	693KB	450KB	228KB	450KB	294KB	155KB	208KB	141KB	79KB
FC-8M	10	16	32	16	24	46	35	50	87
FC-16M	21	32	64	32	49	92	70	99	172
FC-32M	43	67	131	67	102	189	143	206	353
FC-64M	88	135	263	135	205	379	288	415	707
FC-128M	177	271	528	271	412	760	577	831	1417

Movie (PS A40/A30)

	320x240	160x120
File Size	380KB/sec.	130KB/sec.
FC-8M	18sec.	48sec.
FC-16M	36sec.	97sec.
FC-32M	75sec.	198sec.
FC-64M	152sec.	399sec.
FC-128M	305sec.	799sec.

*Any documents to be distributed outside the company should state that above-written figures are measured under Canon's standard shooting conditions and may vary depending on the scene, subjects or shooting camera settings.

-Tone reproduction

Luminance signal : 8 bits

Color signal : 8 bits (Cr / Cb)

<Playback specifications>

-Playback modes

Single, Index (9 thumbnail images), Magnification or Slide show

-Direct print

Image output to dedicated printer (CP-10, CP-100)

-Magnify

Approx. 2X to 10X on built-in LCD monitor (Zoom)

-Vertical and horizontal conversion

Vertical and horizontal conversion can be set on each image.

(Both LCD and Video Out play an image according to setting.)

<Erasing specifications>

-Erasing modes

Single image

All images

(When "All images" is set, any images in the CF card captured with another digital camera or peripheral device (DCF format) are erased. Regarding Canon digital cameras, images taken by PowerShot Pro70 or prior models are not erased. Images taken by PowerShot A50 (DCF format) or late models are erased (without EOS D2000/D6000).

However images which are protected are not erased.

<Interface>

-Computer I/F	Universal Serial Bus (USB),
-A/V out	Video : NTSC or PAL selectable Audio : monaural (PS A40 only)

<Display specifications>

-LED (Upper LED)	Lights in green : Indicates that the camera is ready with flash off. Blinks in green : Recording to CF card/Reading CF card/Erasing data on CF card Lights in orange : Indicates that the camera and flash are ready. Charging battery completed (adequate charge for use)
-LED (Lower LED)	Blinks in orange : Indicates that the camera is ready (camera shake warning) Lights in yellow : SW1 ON in macro shooting, snap shooting, infinity shooting Blinks in yellow : Indicates that the focus goes to fixed point because the actual focus point is not found.

<Power Supply>

-Power sources	Primary battery : LR 6 / Size AA battery Secondary battery : (Size AA / NiCd battery), Size AA / NiMH battery Compact power adapter: CA-PS500
-Shooting capacity	LR 6 / Size AA battery (Panasonic) LCD ON : Approx. 200 images LCD OFF : Approx. 500 images Size AA / NiMH battery (NB-1AH) LCD ON : Approx. 350 images LCD OFF : Approx. 1000 images <i>* Canon's standard conditions of measuring shooting capacity are as follows: Normal temperature (23 Celsius degrees). LCD viewfinder is ON. Shoot images at wide angle end and at telephoto end alternately with 20 seconds intervals. Use flash at every 4-time shootings. Turn camera off and on at every 8-time shootings.</i>
-Playback time	LR 6 / Size AA battery (Panasonic) : Approx. 240 min. Size AA / NiMH battery (NB-1AH) : Approx. 240 min. <i>* Canon's standard conditions of measuring playback time are as follows: Normal temperature (23 Celsius degrees). Repeat playback automatically at a speed of 1 image per 5 seconds.</i>

<Camera specifications>

-Operating temperature	0 - 40 C (32 - 104 F)
-Operating humidity	10 - 90%
-Dimensions (WxHxD)	110.3 X 71 X 37.6 mm (4.34 X 2.81 X 1.48 in.) (excluding protrusion)
-Weight	Approx. 250 g (8.82 oz) (excluding batteries and CF card)

●Parameter availability by modes

		Auto	Program	Manual	Stitch	Movie
Flash	Auto	○	○	—	—	—
	Red-eye reduction auto	○*	○*	—	—	—
	ON	—	○	○	△	—
	OFF	○	○	○*	△*	—
	Red-eye reduction ON	—	—	○	—	—
	Slow-syncro.	—	○	—	△	—
Focus zone	Normal	○	○	○	△	○
	Infinity	—	○	○	△	○
	Snap	—	○	○	△	○
	Macro	○	○	○	△	○
Shooting	Single	○*	○*	○*	○*	○*
	Continuous	—	○	○	—	—
	Self-timer(2/10 sec.)	○	○	○	△	○
Photo effect		—	○	○	△	○
AF frame selection	3 points (AiAF)	○	○	○	○	○
	1 point	—	○	○	—	—
Exposure compensation		—	○	—	△	○
White balance		Auto only	○	○	△	○
AF lock shooting		—	○	○	—	—
Metering method	Evaluation	○	○*	—	○	○
	Spot	—	○	—	—	—
Recording pixels	L	○*	○*	○*	△*	—
	M	○	○	○	△	—
	S	○	○	○	△	—
	Movie (320×240)	—	—	—	—	○
	Movie (160×120)	—	—	—	—	○
Compression level	Superfine	○	○	○	△	—
	Fine	○*	○*	○*	△*	—
	Normal	○	○	○	△	—
Recording format	JPEG	○	○	○	○	—
	AVI (M-JPEG/WAVE)	—	—	—	—	○ ⁽¹⁾
ISO equivalent speed		Auto only	○ ⁽²⁾	○ ^{(2) (3)}	Auto only	Auto only
Digital zoom		○ ⁽⁴⁾	○ ⁽⁴⁾	○ ⁽⁴⁾	—	—
AF-assist Beam ON-OFF		○	○	○	△	○

* : Default

○ : Selectable

○ : Selectable for the first picture only.

△ : Not selectable

■ : Settings are memorized after switch turns off.

(1) : Audio recording is not available with PowerShot A30

(2) : Default is ISO 50

(3) : Not selectable for "Auto"

(4) : Default is OFF

●Playback compatibility

Playback compatibility of PowerShot/IXY DIGITAL series is as follows. PowerShot A40/A30 can accept 3200(H) X 2400(V) pixels.

			Playback Cameras												
			PS 350	PS A5/ A5 Z	PS Pro70	PS A50	PS S10/S20	IXY DIGITAL	PS G1 Pro90 IS	EOS D30	IXY D 200/300	PS A10/A20	PS G2	PS S30/S40	PS A40/A30
Image taking Cameras	PS 350	CIFF	○	○	○	○	○	×	×	×	×	×	×	×	×
	PS A5/A5 Z	CIFF	△	○ *1	○ *1	○ *1	○ *1	×	×	×	×	×	×	×	×
	PS Pro70	CIFF	△	○ *2	○ *1	○ *1	○ *1	×	×	×	×	×	×	×	×
	PS A50	CIFF	△	○ *2	○ *1	○ *1	○ *1	×	×	×	×	×	×	×	×
		DCF	×	×	×	○ *1	○ *1	○ *1	○ *1	○ *1	○ *1	○ *1	○ *1	○ *1	○ *1
	PS S10/S20	DCF	×	×	×	○ *3	○	○	○	○	○	○	○	○	○
	IXY DIGITAL	DCF	×	×	×	○	○	○	○	○	○	○	○	○	○
	PS G1	DCF (Still)	×	×	×	○ *1*3	○ *1	○ *1	○	○	○ *1	○ *1	○	○	○
	PS Pro90 IS	(Movie)	×	×	×	▲	▲	▲	○	▲	○ *5	▲	○	○	○ *5
	EOS D30	DCF	×	×	×	○ *1*3	○ *1	○ *1	○	○	○ *1	○ *1	○	○	○
	IXY DIGITAL 200/300	DCF (Still)	×	×	×	○	○	○	○	○	○	○	○	○	○
		(Movie)	×	×	×	▲	▲	▲	○ *6	▲	○	▲	○	○	○
	PS A10/A20	DCF	×	×	×	○	○	○	○	○	○	○	○	○	○
	PS G2	DCF (Still)	×	×	×	○ *1*3	○ *1	○ *1	○	○	○ *1	○ *1	○	○	○
		(Movie)	×	×	×	▲	▲	▲	○ *5*6	▲	○ *5*6	▲	○	○	○ *5*6
	PS S30/S40	DCF (Still)	×	×	×	○ *1*3	○ *1	○ *1	○	○	○ *1	○ *1	○	○	○
		(Movie)	×	×	×	▲	▲	▲	○ *5*6	▲	○ *5*6	▲	○	○	○ *5*6
	PS A30/A40	DCF (Still)	×	×	×	○	○	○	○	○	○	○	○	○	○
		(Movie)	×	×	×	▲	▲	▲	○ *6	▲	○ *5	▲	○	○	○
	Others DCF cameras	DCF (Still)	×	×	×	○ *3	○ *4	○ *4	○ *4	○ *4	○ *4	○ *4	○ *4	○ *4	○ *4
		(Movie)	×	×	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲

○ :Replayable

△ :Impossible to replay RAW images

▲ :Thumbnail display of AVI (main image with thumbnail (.thm) only)

×

Not replayable

*1 :Thumbnail display of RAW mode images

*2 :Thumbnail display of RAW mode images. JPEG file replay up to 1,024 X 768 pixels

*3 : •Only JPEGfile replay

•Replayable up to 1,632 X 1,232 pixels. With images larger than the thumbnail display (160 X 120) size the "Image too large" message is displayed.

*4 : •Only JPEGfile replay

•Replayable up to 3,200 X 2,400 pixels. With images larger than the thumbnail display (160 X 120) size the "Image too large" message is displayed.

*5 : •Not replayable up to definite size. "Image too large" message displayed.

*6 : •Not replayable up to definite movie shooting timesize. "Corrupted data" message displayed.

*Since the PS G2/PS G1/Pro90 IS/EOS D30's RAW function has an internal JPEG file for playback, a full screen image is displayed.

However, if the RAW images from the PS A50 and previous models are played back with the PS G2/PS G1/Pro90 IS/EOS D30, thumbnails will be displayed.

4-2 System Requirement

	Windows	Macintosh
OS	<ul style="list-style-type: none"> • Windows 98 (including SE) • Windows 2000 • Windows Me • Windows XP 	<ul style="list-style-type: none"> • Mac OS from 8.6 to 9.2 Mac OS X not supported USB Mounter is available from Mac OS 9.0 to 9.2
CPU	Pentium 150MHz or better (Windows XP: 300MHz or better)	Power PC
Memory (RAM)	<ul style="list-style-type: none"> • 32MB or more (Win98) • 64MB or more (Win Me/2000) • 128MB or more (Win XP) 	20MB or more for application
Space capacity of hard disk	<ul style="list-style-type: none"> • ZoomBrowser EX 3.2 (PhotoRecord 1.4): 120MB or more • PhotoStitch 3.1: 40MB or more • RemoteCapture 2.2: 20MB or more • Raw Image Converter 1.2: 10MB or more • USB TWAIN Driver 4.1: 25MB or more • USB WIA Driver 4.1: 25MB or more • CP-10 PrinterDriver: 1MB or more * • Arcsoft PhotoImpression: 125MB or more • Arcsoft VideoImpression: 30MB or more <p>*Capacity for installation</p>	<ul style="list-style-type: none"> • ImageBrowser 2.2: 20MB or more • PhotoStitch 3.1: 30MB or more • RemoteCapture 2.2: 15MB or more • Raw Image Converter 1.2: 10MB or more • USB Mounter 1.2: 5MB or more ^{*1} • USB Plug-In Module 4.1: 15MB or more • CP-10 PrinterDriver: 3.8MB or more ^{*2} • Arcsoft PhotoImpression: 120MB or more • Arcsoft VideoImpression: 30MB or more <p>^{*1} Available with Mac OS 9.0 or better ^{*2} Capacity for installton</p>
Display	800 x 600 dots (8 bits) and over 1,024 x 768 dots (16 bits) and over (recomended) However Arcsoft PhotoImpression and Arcsoft VideoImpression require 800 x 600 dots (16 bits) and over	800 x 600 dots (256 color) and over 1,024 x 768 dots (32000 color) and over (recomended) However Arcsoft PhotoImpression and Arcsoft VideoImpression require 800 x 600 dots (32000 colors) and over

4-3 Accessory Specifications

●Tele-Conversion Lens TC-DC52

- Magnification : Approx. 2.4X (252 mm in 35 mm format, attached to PS A40/A30)
- Lens construction : 2 elements in 2 groupes (Multicoat finishing)
- Focusing distance: Same as focusing distance of master lens
- Dimensions : See Fig. 4-1
- Weight : 74 g (2.6 oz)
- Thread size : 52mm dia. (Attached via Conversion lens adapter.)

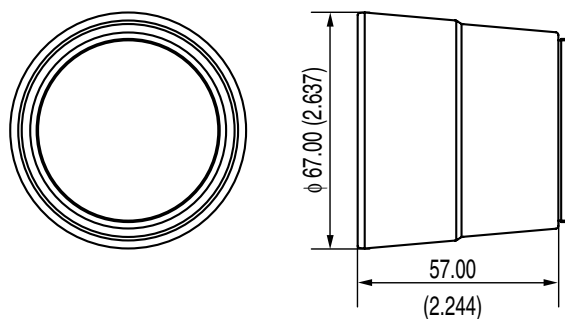
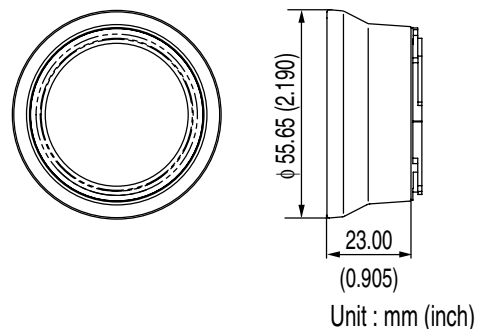


Fig. 4-1 Tele-Conversion Lens TC-DC52



Unit : mm (inch)

Fig. 4-2 Conversion Lens Adapter LA-DC52B

●Conversion Lens Adapter LA-DC52B

- Dimensions : See Fig. 4-2
- Weight : 13 g (0.46 oz)
- Attachment method : Bayonet type

●AV Cable AVC-DC100

- Plug construction : RCA Pin-plug - L plug
- Dimensions : See Fig. 4-3

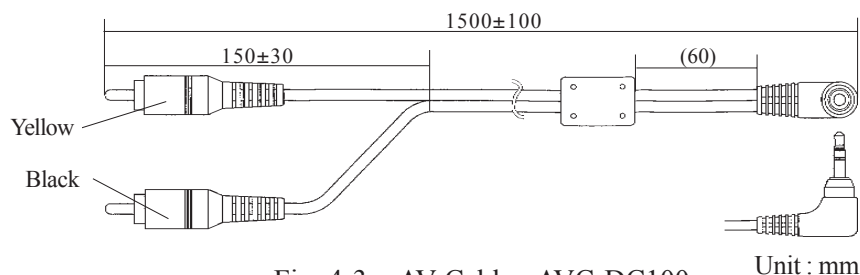


Fig. 4-3 AV Cable AVC-DC100

Unit : mm

●Wide Converter WC-DC52

- Magnification : Approx. 0.7X (24.5 mm in 35 mm format, attached to PS A40/A30)
- Lens construction : 2 elements in 2 groupes (Multicoat finishing)
- Focusing distance : Same as focusing distance of master lens
- Weight : 77 g (2.7 oz)
- Thread size : 52mm dia. (Attached via Conversion lens adapter.)

5 System

5-1 Accessory compatibility

●PowerShot / IXY series accessory compatibility

	PS A30 PS A40	PS S30 PS S40	PS G2	IXY D 200	IXY D 300	PS A20 PS A10	IXY DIGITAL	PS Pro 90 IS	PS G1	PS S10 PS S20	PS Pro70	PS A5 Z PS A50	PS A5
< Battery >													
NB-5H	-	-	-	-	-	-	-	-	-	O	-	O	O
NB-4H	-	-	-	-	-	-	-	-	-	-	O	-	-
NB-1L	-	-	-	O	O	-	O	-	-	-	-	-	-
BP-511	-	-	O	-	-	-	-	O	O	-	-	-	-
BP-512	-	-	O	-	-	-	-	-	-	-	-	-	-
NB4-100	O	-	-	-	-	O	-	-	-	-	-	-	-
NB-2L	-	O	-	-	-	-	-	-	-	-	-	-	-
< Adapter/Charger >													
CA-PS100/100E	-	-	-	-	-	-	-	-	-	O	-	O	O
CA-PS200	-	-	-	-	-	-	-	-	-	-	O	-	-
CA-PS300	-	-	-	-	-	-	O	-	-	-	-	-	-
CA-PS500	-(O)*1	-	-	O	O	-(O)*1	O	-	-	-	-	-	-
CA-560	-	-	O	-	-	-	-	O	O	-	-	-	-
CR-560	-	-	O	-	-	-	-	O	O	-	-	-	-
CB-2L/2LE	-	-	-	-	-	-	O	-	-	-	-	-	-
CB-2LS/2LSE	-	-	-	O	O	-	-	-	-	-	-	-	-
CB-3AH	O	-	-	-	-	O	-	-	-	-	-	-	-
CBK100	O	-	-	-	-	O	-	-	-	-	-	-	-
CB-2LT/CB-2LTE	-	O	-	-	-	-	-	-	-	-	-	-	-
*1 It is possible to use by inserting the adapter's DC plug in the jack of PS A40/A30/A20/A10 cameras directly without using DC coupler.													
< DC coupler >													
DR-100/100A	-	-	-	-	-	-	-	-	-	O	-	O	O
DR-200	-	-	-	-	-	-	-	-	-	-	O	-	-
DR-300	-	-	-	-	-	-	O	-	-	-	-	-	-
DR-500	-	-	-	O	O	-	-	-	-	-	-	-	-
DR-700	-	O	-	-	-	-	-	-	-	-	-	-	-
< Lens accessories >													
WC-DC58	-	-	O	-	-	-	-	O	O	-	-	-	-
WC-DC52	O	-	-	-	-	O	-	-	-	-	-	-	-
TC-DC58	-	-	O	-	-	-	-	-	O	-	-	-	-
250D 58mm	-	-	O	-	-	-	-	-	O	-	-	-	-
500D 58mm	-	-	-	-	-	-	-	O	-	-	-	-	-
250D 52mm	O	-	-	-	-	O	-	-	-	-	-	-	-
LA-DC58	-	-	O	-	-	-	-	-	O	-	-	-	-
LA-DC52	-	-	-	-	-	O	-	-	-	-	-	-	-
LH-DC58	-	-	-	-	-	-	-	O	-	-	-	-	-
TC-DC52	O	-	-	-	-	O	-	-	-	-	-	-	-
LA-DC52B	O	-	-	-	-	-	-	-	-	-	-	-	-

< Speed-light >

220EX	-	-	O	-	-	-	-	O	O	-	O	-	-
380EX	-	-	O	-	-	-	-	O	O	-	O	-	-
550EX	-	-	O	-	-	-	-	O	O	-	-	-	-
420EX	-	-	O	-	-	-	-	O	O	-	-	-	-
(MR-14EX)	-	-	O	-	-	-	-	-	-	-	-	-	-

< Remote switch >

WL-DC100	-	-	O	-	-	-	-	O	O	-	-	-	-
RS-8N3	-	-	-	-	-	-	-	-	-	-	O	-	-

< Cable/Others >

VC-100	O* 3	-	-	-	-	O* 2	-	-	-	O	O	O	O
VC-200	-	-	-	-	-	-	O	-	-	-	-	-	-
AVC-DC100	O* 4	O	O	-	O	-	-	O	O	-	-	-	-
AVC-DC200	-	-	-	O	-	-	-	-	-	-	-	-	-
IFC-100PCS	-	-	-	-	-	-	-	-	-	-	O	O	O
IFC-100MC	-	-	-	-	-	-	-	-	-	-	O	O	O
IFC-200PCS	-	-	-	-	-	-	-	O	O	O	-	-	-
IFC-200PCU	-	-	O	O	-	-	O	O	O	O	-	-	-
IFC-200MC	-	-	-	-	-	-	-	O	O	O	-	-	-
IFC-300PCU	O	O	-	-	O	O	-	-	-	-	-	-	-
AD-PC98	-	-	-	-	-	-	-	O	O	O	O	O	O
DIF-100	O	O	O	-	O	O	-	-	-	-	-	-	-
DIF-200	-	-	-	O	-	-	-	-	-	-	-	-	-

* 3 PS A30 only

* 4 PS A40 only

* 2 PS A20 only

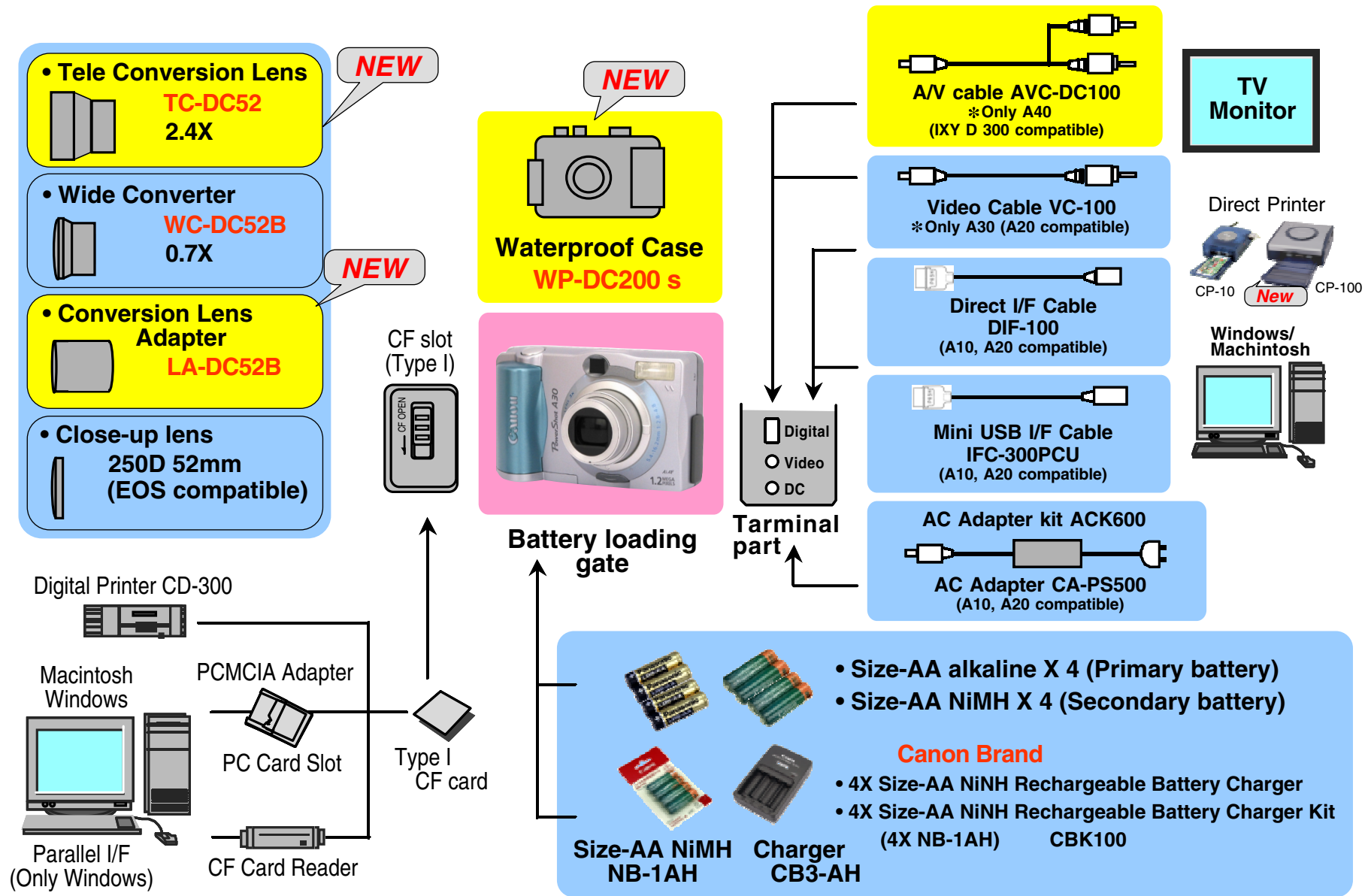
< Case >

SC-PS100	-	-	-	-	-	-	-	-	-	O	-	O	O
SC-PS300	-	-	-	O	-	-	O	-	-	-	-	-	-
SC-PS400	-	-	-	-	-	-	-	-	O	-	-	-	-
SC-PS500	-	-	-	-	O	-	-	-	-	-	-	-	-
SC-PS600	O	-	-	-	-	O	-	-	-	-	-	-	-
SC-PS700	-	-	O	-	-	-	-	-	-	-	-	-	-
SHC-PS200	-	-	-	-	-	-	-	-	-	-	O	-	-
SHC-PS300	-	-	-	-	-	-	-	O	-	-	-	-	-
SC-PS800	-	O	-	-	-	-	-	-	-	-	-	-	-

< All Weather Case/Water Proof Case >

AW-PS100	-	-	-	-	-	-	-	-	-	-	-	-	O
AW-PS110	-	-	-	-	-	-	-	-	-	-	-	O	-
AW-PS200	-	-	-	O	-	-	O	-	-	-	-	-	-
WP-DC100	-	-	-	-	O	-	-	-	-	-	-	-	-
WP-DC200	-	-	-	-	-	O	-	-	-	-	-	-	-
WP-DC300	-	O	-	-	-	-	-	-	-	-	-	-	-
WP-DC200s	O	-	-	-	-	O	-	-	-	-	-	-	-

5-2 System diagram



CHAPTER 2. TECHNICAL DESCRIPTION

CONTENTS

1. Functions of each unit	
1.1 MAIN PCB ASS'Y -----	2-1
1.2 DC/DC PCB ASS'Y -----	2-1
1.3 FLASH UNIT-----	2-1
2. Outline of Circuits	
2.1 Power Supply Control -----	2-2
2.1.1 Power Supply Block Diagram -----	2-2
2.1.2 Power Control Sequence -----	2-2
2.2 Signal Processing -----	2-3
2.2.1 System Control -----	2-3
2.2.2 Picture Processing -----	2-4
2.2.3 Audio Processing (During record and playback) -----	2-4
3. Troubleshooting	
3.1 When an Error Code is Displayed -----	2-5
3.2 When a Problem Occurs -----	2-7

1. Functions of each unit

1.1 MAIN PCB ASS'Y

- 1) Driving the CCD Sensor.
- 2) Conversion of the image signal from the analog signal to the digital signal.
- 3) Controlling the power supply and the system by CPU. (Refer to Sections 2.1 and 2.2.)
- 4) Image processing, and reading and writing the image signal to and from the CF card using DSP. (Refer to Section 2.2.2.)
- 5) LCD drive and amplification of the video and audio output. (A40 model only) (Refer to Section 2.2.3.)

1.2 DC/DC PCB ASS'Y

- 1) Power supply drive (DC/DC converter).
- 2) Backlight for LCD drive.

1.3 FLASH UNIT

- 1) Flash drive and charging circuit for the flash.

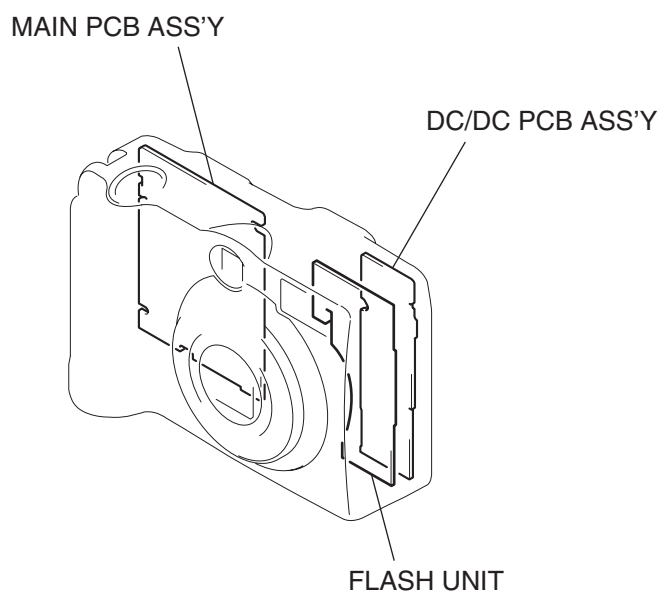


Fig. 1

2. Outline of Circuits

2.1 Power Supply Control

The power supply is controlled by the CPU mounted on the main PCB ass'y.

2.1.1 Power Supply Block Diagram

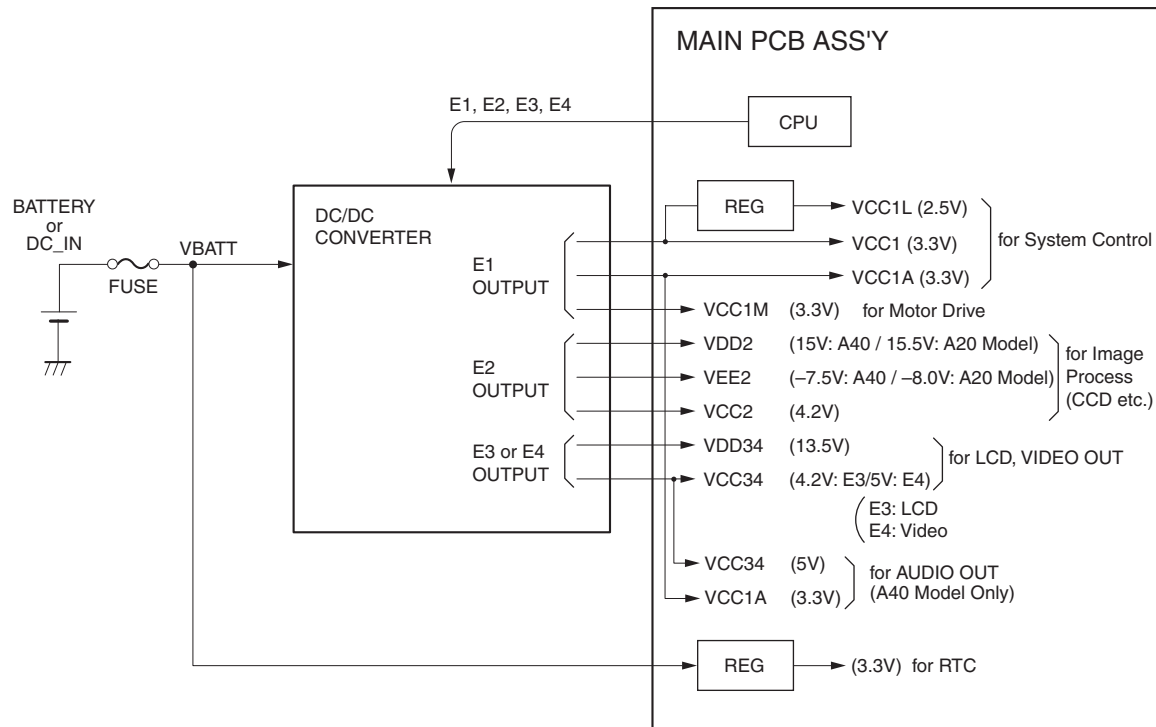
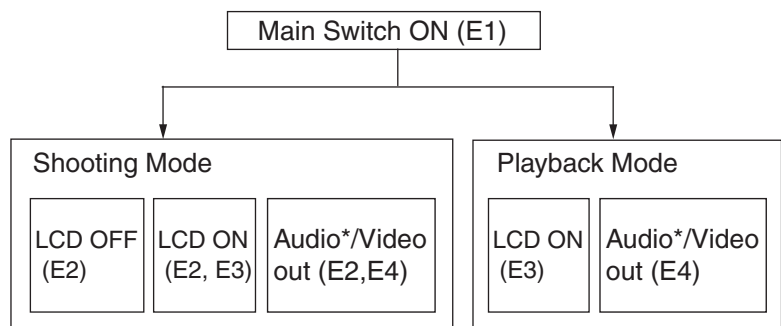


Fig. 2 Power System Block Diagram

2.1.2 Power Control Sequence



* A40 Model only

2.2.2 Picture Processing

- 1) The drive pulse of the CCD sensor is created by both clock from DSP and TG that is operated by sync. signal.
The picture signal by the drive pulse is output from CCD sensor.
The output signal of the CCD picture is converted to the signal processing and the digital data by the CDS and A/D converter, and is sent to the DSP.
- 2) The DSP circuit performs the following signal processing.
 - Processes the picture data (using the SDRAM).
 - Writes and reads the picture data to and from the CF card.
 - Inputs the picture data to the CPU.
 - Outputs analog video signal to the LCD and VIDEO OUT.
- 3) The video signal that is supplied from the DSP is controlled by the LCD driver and is displayed on the LCD. The video amplifier is activated when the video jack is inserted to the video jack or AV jack and drives the video signal in 75 Ω .

2.2.3 Audio Processing (During record and playback)

- 1) During animation recording.
 - The microphone audio signal is converted to the digital data by CPU and is recorded.
- 2) During playback, the data is converted back to the analog audio signal and is output to the AV jack.

Note: Installed in the A40 model only. (Audio cannot be played back by camera.)

3. Troubleshooting

3.1 When an Error Code is Displayed

[Remedy]

- Check for any abnormalities in the mounting of probable faulty parts or connector connections referring to the table below.
- Try replacing probable faulty parts referring to the below.

[NOTE]

- The error code is displayed on the LCD Monitor.
- Adjustments must be performed after the part has been replaced. For details, see the chapter of “Adjustments”.

Error Code	Name	Occurrence Conditions	Cause and Probable Faulty Part
E02	AF TIME OUT	AF processing did not end within the specified time.	MAIN PCB ASS'Y
			OPTICAL UNIT
		The focus lens was not driven.	MAIN PCB ASS'Y
			OPTICAL UNIT
E03	EF TIME OUT	Auto Flash Control did not end within the specified time.	MAIN PCB ASS'Y
			OPTICAL UNIT
E09	JPEG DMA TIME OUT	JPEG processing did not end within the specified time.	MAIN PCB ASS'Y
E14	UNKOWN	When unkown error, cause of which is not known, occurs.	UNKOWN
E16	IMAGING TIME OUT	When communication between CPU and peripheral IC is not completed within the specified time during recording using EVF or after completion of recording.	MAIN PCB ASS'Y
E18	ZOOM LENS ERROR	Movement of the lens barrel did not end within the specified time.	MAIN PCB ASS'Y
			OPTICAL UNIT
E23	CF NO SPACE	When the CF becomes full during writing of photographed images to CF, writing is repeatedly performed with the JPEG compression ratio successively increased to reduce the size of the image file until it can be successfully written to CF. This error occurs when writing of the JPEG image file fails after 10 retries at increasingly higher compression ratios.	MAIN PCB ASS'Y
E24	POWER ON ERROR	The power of the imaging circuit on the MAIN PCB ASS'Y was not detected.	MAIN PCB ASS'Y
			DC/DC PCB ASS'Y
E25	FOCUS PI ERROR	Detection of the focus PI (photo-interrupter) failed.	OPTICAL UNIT
			MAIN PCB ASS'Y
E26	CAPTURE TIME OUT	Writing of the photograph image to SDRAM did not end within the specified time.	MAIN PCB ASS'Y

Error Code	Name	Occurrence Conditions	Cause and Probable Faulty Part
E27	CF WRITE TIME OVER	Free area could not be secured in the buffer for the photograph image within the specified time in the continuous shooting mode.	CF CARD
			MAIN PCB ASS'Y
E30	POWER OFF ERROR	The camera power was turned OFF while the image was being recorded to the CF Card. (The error code is displayed when the camera is next turned ON.) * This error may occur after E23.	The battery or DC plug was removed while the image was being recorded to the CF Card. → Remedy: Restart the camera.
E50	CF FORMAT ERROR	The CF Card could not be formatted properly.	CF CARD
E51	CF ACCESS ERROR	When image data cannot be read from CF normally.	CF CARD
E52	QUICK REVIEW ERROR	Review of the photograph image failed.	MAIN PCB ASS'Y

3.2 When a Problem Occurs

[Remedy]

- Check for any abnormalities in the mounting of probable faulty parts or connector connections referring to the table below.
- Try replacing probable faulty parts referring to the table below.

[NOTE]

- Adjustments must be performed after the part has been replaced. For details, see the chapter of “Adjustments”.

Problem (when an error code is not displayed)	Cause and Probable Faulty Part
The camera does not work.	MAIN PCB ASS'Y
	REAR COVER UNIT
	DC/DC PCB ASS'Y
	BATTERY BOX UNIT
The image is not displayed on the LCD Monitor.	MAIN PCB ASS'Y
	BUTTON PCB ASS'Y
	LCD PANEL
	BACK LIGHT UNIT
The photograph image is abnormal.	OPTICAL UNIT
	MAIN PCB ASS'Y
The zoom does not function.	OPTICAL UNIT
	MAIN PCB ASS'Y
	BATTERY BOX UNIT
	REAR COVER UNIT
The Built-in Flash does not fire.	FLASH UNIT
	DC/DC PCB ASS'Y
Video output is strange.	MAIN PCB ASS'Y
Communications with the personal computer is not possible.	MAIN PCB ASS'Y
The CF card or Micro Drives is not recognized.	CF CARD
	REAR COVER UNIT
	MAIN PCB ASS'Y
Buttons/The Mode dial do not work.	REAR COVER UNIT
	RLS PCB ASS'Y

CHAPTER 3. REPAIR INSTRUCTION

CONTENTS

1. Before Starting the Repair Work	
1.1 Precaution on Flash High Tension Circuit -----	3-1
1.2 List of Tools -----	3-1
1.3 List of Supplies -----	3-1
1.4 Flexible Connectors -----	3-2
2. Disassembly/Assembly	
2.1 Procedure -----	3-3
2.2 REAR COVER UNIT -----	3-4
2.3 FRONT COVER UNIT, CF COVER -----	3-5
2.4 LENS BARREL SHEET, BATTERY COVER UNIT -----	3-6
2.5 BACKLIGHT UNIT, LCD PANEL -----	3-7
2.6 MAIN PCB ASS'Y -----	3-8
2.7 DC/DC PCB ASS'Y -----	3-9
2.8 FLASH UNIT -----	3-10
2.9 OPTICAL UNIT, FINDER UNIT -----	3-11
2.10 CCD UNIT -----	3-12
2.11 BATTERY BOX UNIT, RLS PCB ASS'Y, LITHIUM BATTERY HOLDER -----	3-13
2.12 OPTICAL UNIT -----	3-14
2.13 Assembling the FINDER UNIT -----	3-15
2.14 Screw List -----	3-16
3. Adjustments	
3.1 Replacement Parts and Adjustment Items -----	3-17
3.2 Adjustment Tools -----	3-18
3.3 Before Starting Electrical Adjustments -----	3-19
3.3.1 TWAIN Driver Installation -----	3-19
3.3.2 Installing the Adjustment Software -----	3-19
3.3.3 Preparation -----	3-21
3.3.4 Starting up the Adjustment Software -----	3-22
3.3.5 Menu Window -----	3-22
3.3.6 How to Use the Adjustment Software -----	3-22
3.4 Calibration -----	3-23
3.4.1 Calibration -----	3-23
3.5 Adjustment Procedure -----	3-27
3.5.1 CCD Adjustment -----	3-27
3.5.2 Optical Unit Adjustment -----	3-29
3.5.3 Imaging Process Adjustment -----	3-31
3.5.4 Pixel Dot Adjustment -----	3-35
3.5.5 Flash Adjustment -----	3-37
3.5.6 Language (For Oth) -----	3-39
3.5.7 Language Settings -----	3-41

1. Before Starting the Repair Work

Be sure to read the following precaution before starting the repair work.

1.1 Precaution on Flash High Tension Circuit

- When the FRONT COVER UNIT is removed, be sure to discharge the main capacitor.
(Discharging resistor: 1 k ohms, approx. 5 W.)
- First contact the GND \ominus terminal of the main capacitor with the discharging resistor. Then contact the positive \oplus terminal of the main capacitor.

CAUTION:

Be careful of electric shock because the circuit is the high tension circuit.

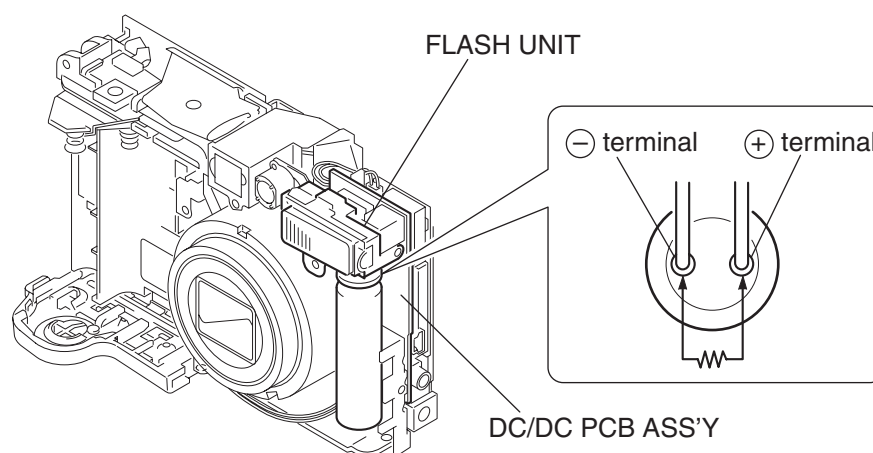


Fig. 3-1 Precaution on flash high tension circuit

1.2 List of Tools

The following tools are used for the re-assembling during service.

(1) List of tools

New	Name of tools	Part No.	Areas where supplies are used
	DRIVER HANDLE	CY9-7014-00	CCD UNIT

1.3 List of Supplies

The following supplies are used for the re-assembling during service.

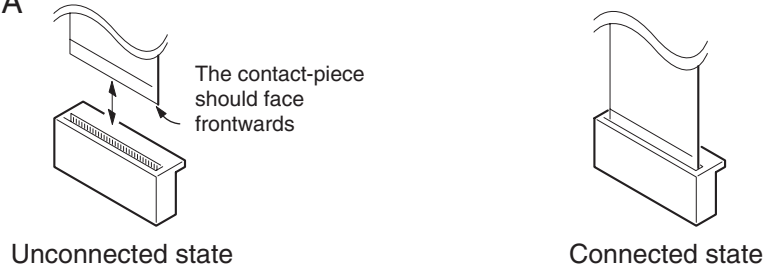
(1) List of supplies

New	Name of supplies	Part No.	Areas where supplies are used
	DIA BOND 1663G	CY9-8129-000	Attaching the parts together
	ADHESIVE TAPE, SONY T4000	CY4-6012-000	Fixing the flexible cable
	ADHESIVE TAPE, 3M NO.56	CY4-6018-000	DC/DC SHIELD CASE 1

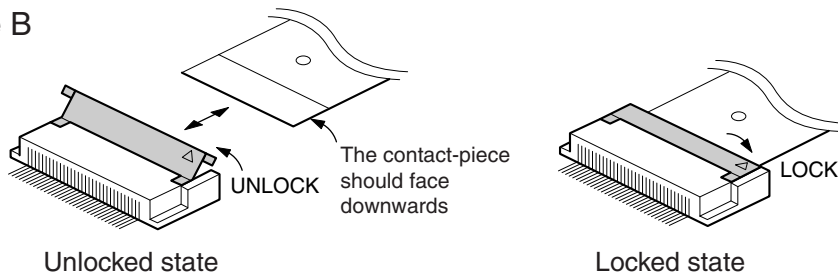
1.4 Flexible Connectors

This product uses the four types of the flexible connectors.

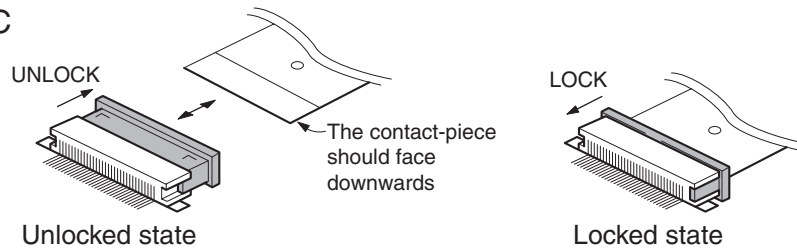
① Type A



② Type B



③ Type C



④ Type D

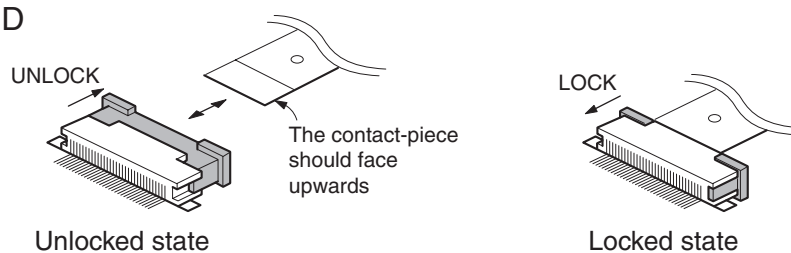


Fig. 3-2 Flexible connectors

CAUTIONS:

1. For the connectors of Type B, Type C and Type D, set them to the unlocked state before removing and inserting flexible card. After flexible card is inserted, set them to the locked state.
2. The flexible card is equipped with the holes as shown. Use them for removal and insertion by inserting the tweezers into them as required.

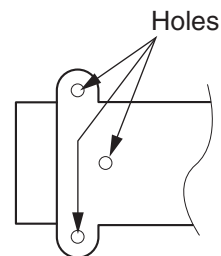


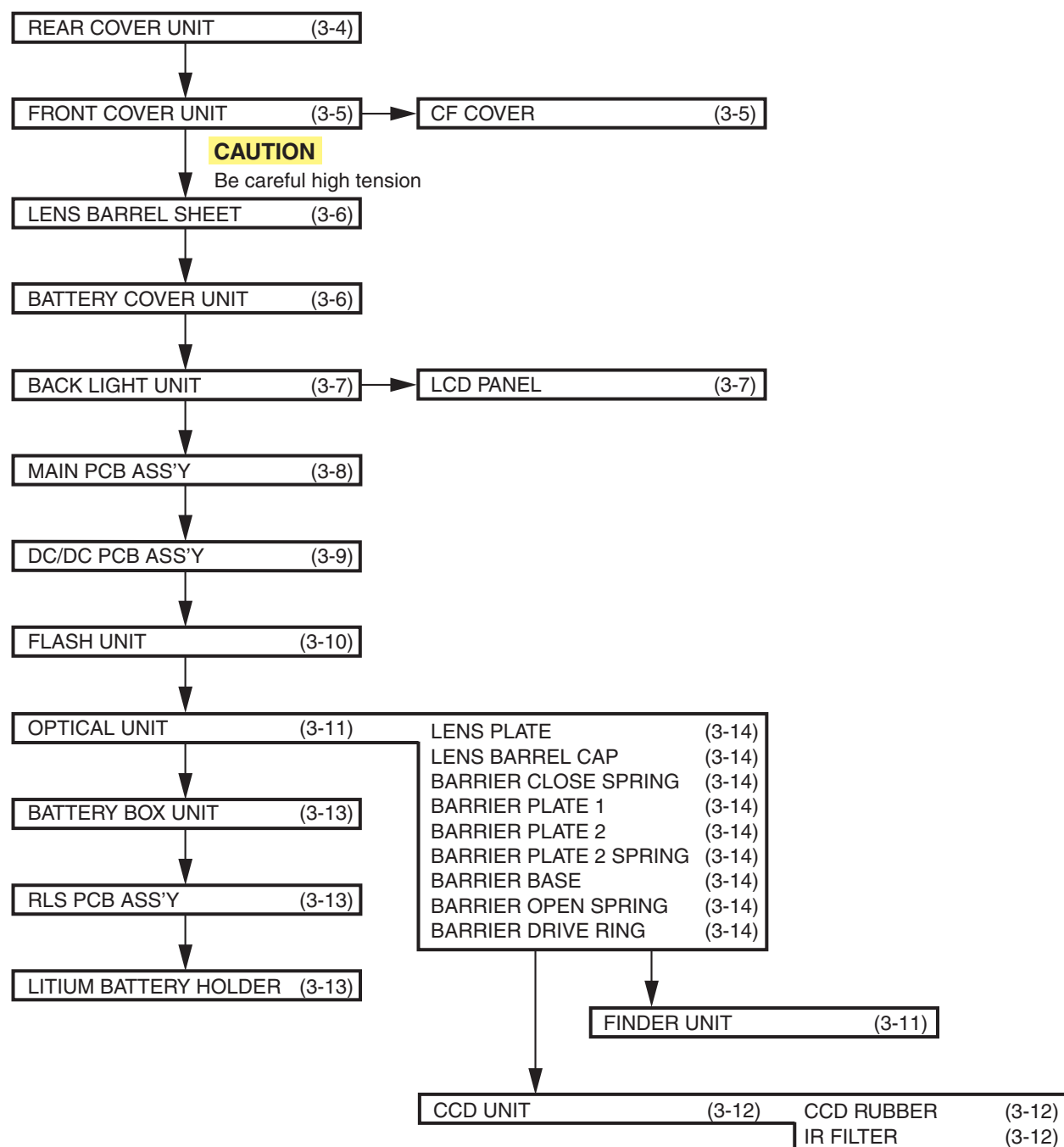
Fig. 3-3 Holes for removal

2. Disassembly/Assembly

2.1 Procedure

Disassembling procedure of PowerShot A40 (A30) is shown by the following flowchart.

Reverse the disassembling procedure to reassemble them. * The pages to refer are shown in parenthesis ().



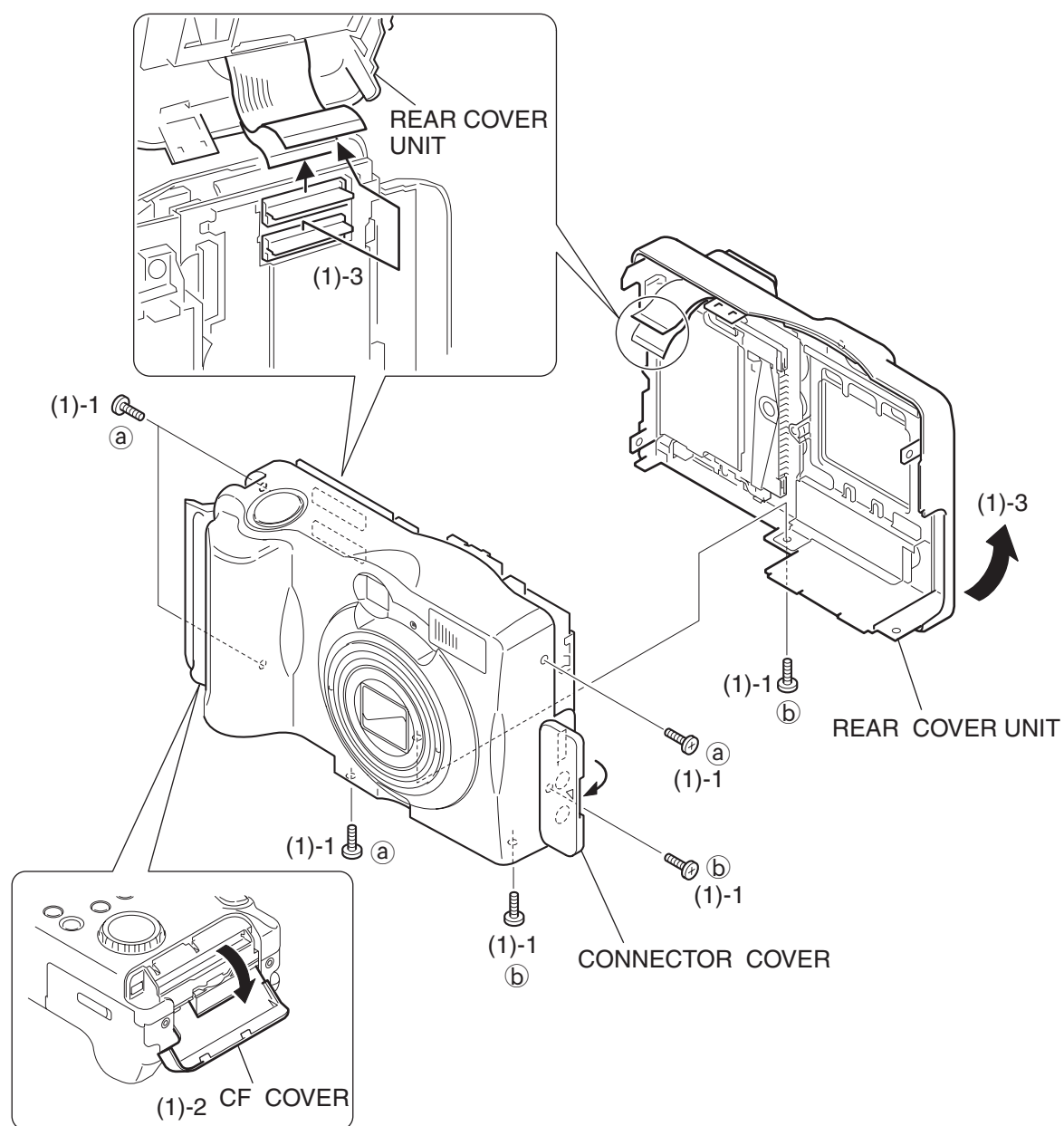


Fig. 3-4 REAR COVER UNIT

2.2 REAR COVER UNIT

(1) REAR COVER UNIT

1. Remove the six screws.
Remove the one screw by turning over the CONNECTOR COVER.
2. Open the CF COVER.
3. Open the REAR COVER UNIT in the direction of arrow and remove it by disconnecting the two flexible printed wired board.

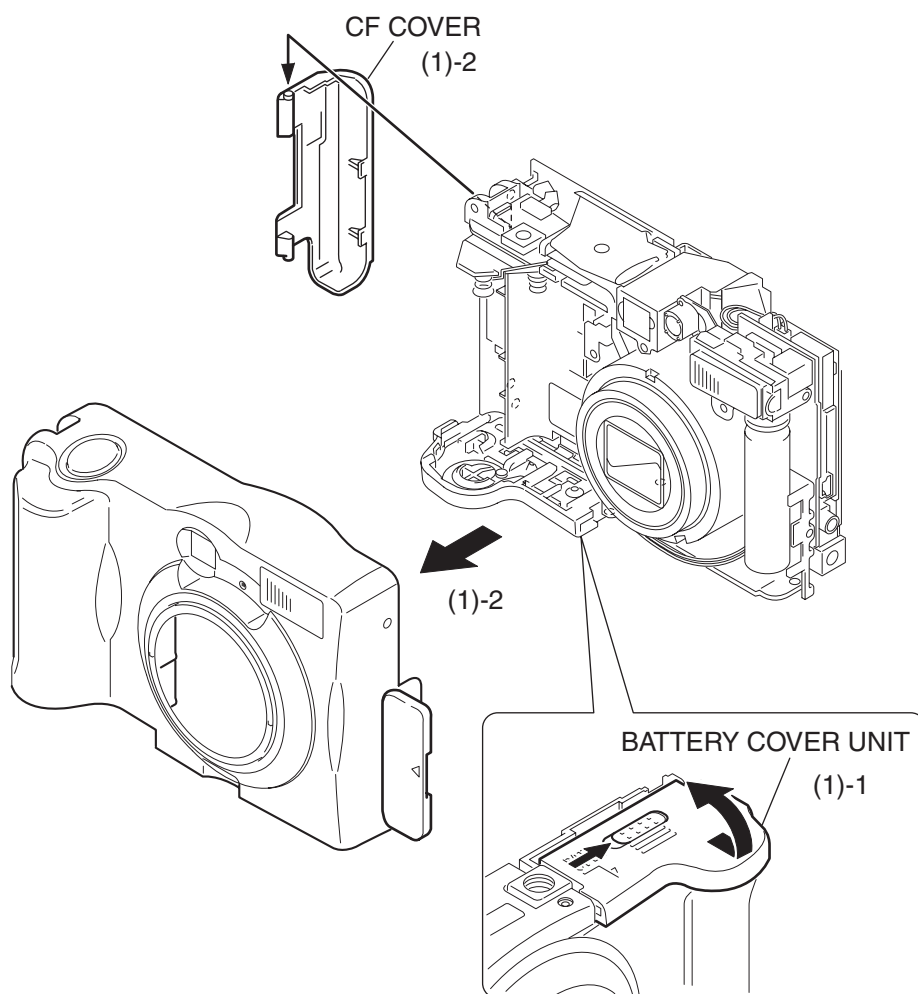


Fig. 3-5 FRONT COVER UNIT, CF COVER

2.3 FRONT COVER UNIT, CF COVER

(1) FRONT COVER UNIT, CF COVER

1. Open the BATTERY COVER UNIT after releasing the lock while pushing the BATTERY OPEN BUTTON in the direction of the arrow .
2. Take the FRONT COVER UNIT in the direction of arrow and at the same time remove the CF COVER.

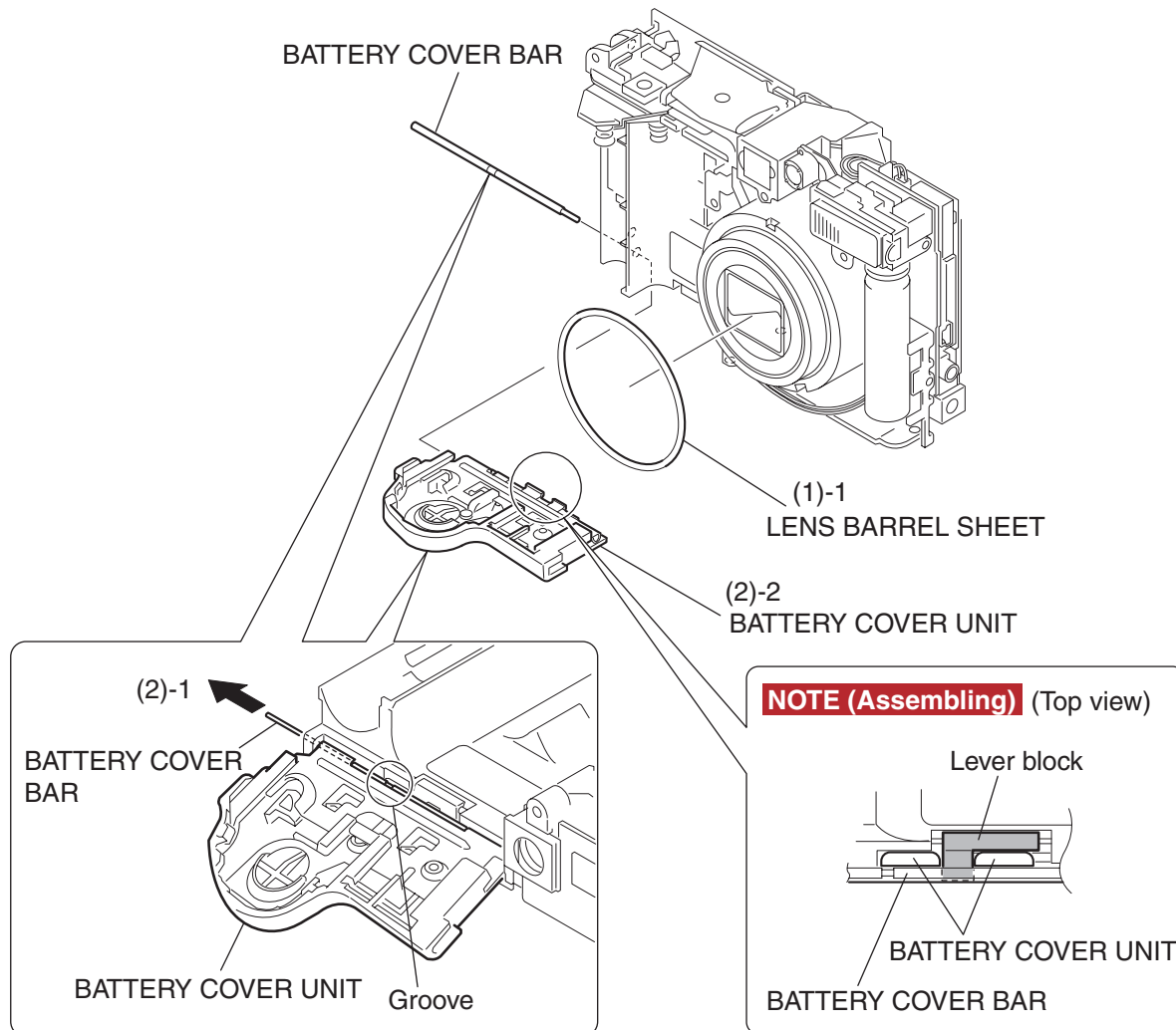


Fig. 3-6 LENS BARREL SHEET, BATTERY COVER UNIT

2.4 LENS BARREL SHEET, BATTERY COVER UNIT

(1) LENS BARREL SHEET

1. Remove the LENS BARREL SHEET.

(2) BATTERY COVER UNIT

1. Insert tweezers or the like into the groove of the BATTERY COVER BAR and remove it in the direction of arrow.
2. Remove the BATTERY COVER UNIT.

NOTE (Assembling)

Attach the lever block to the BATTERY COVER UNIT.

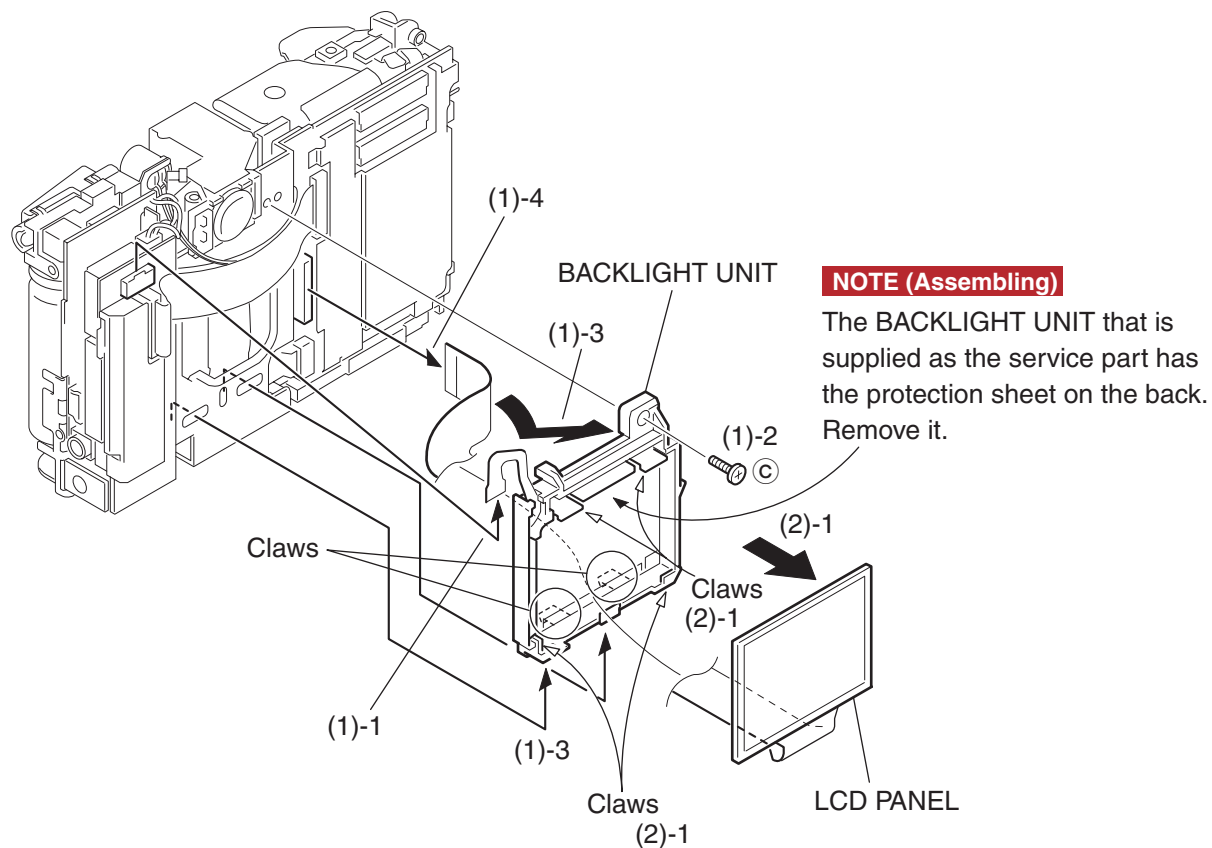


Fig. 3-7 BACKLIGHT UNIT, LCD PANEL

2.5 BACKLIGHT UNIT, LCD PANEL

(1) BACKLIGHT UNIT

1. Remove the flexible printed wired board of the BACKLIGHT UNIT.
2. Remove the screw.
3. Rotate the BACKLIGHT UNIT in the direction of arrow and remove it by releasing the claws.
4. Remove the flexible printed wired board of the LCD PANEL.

(2) LCD PANEL

1. Release the four claws in the top and bottom, and remove the LCD PANEL in the direction of arrow.

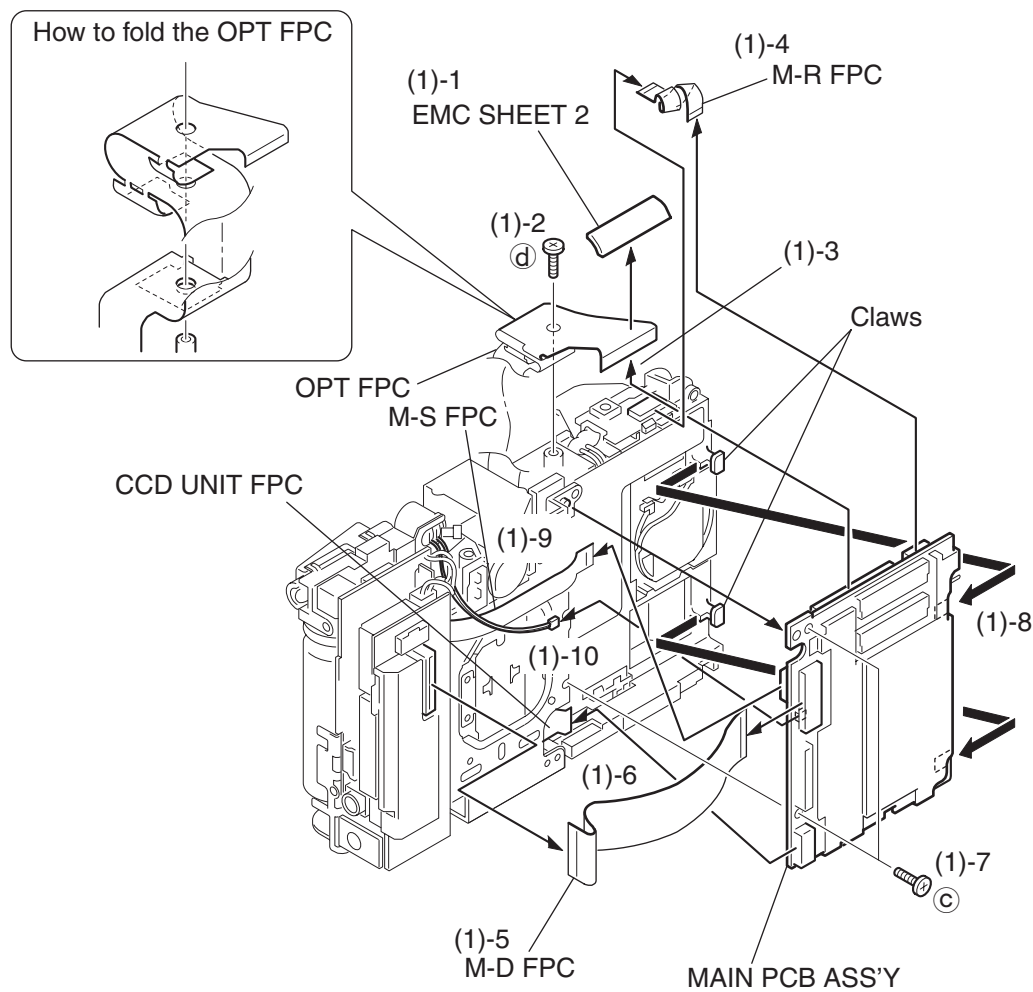


Fig. 3-8 MAIN PCB ASS'Y

2.6 MAIN PCB ASS'Y

(1) MAIN PCB ASS'Y

1. Remove the EMC SHEET 2.
2. Remove the screws.
3. Remove the OPT FPC.
4. Remove the M-R FPC.
5. Remove the M-D FPC.
6. Remove the flexible printed wired board of the CCD UNIT.
7. Remove the two screws.
8. While taking care of the claws in the top and bottom, remove the MAIN PCB ASS'Y in the direction of arrow.
9. Remove the M-S FPC.
10. Disconnect the connector.

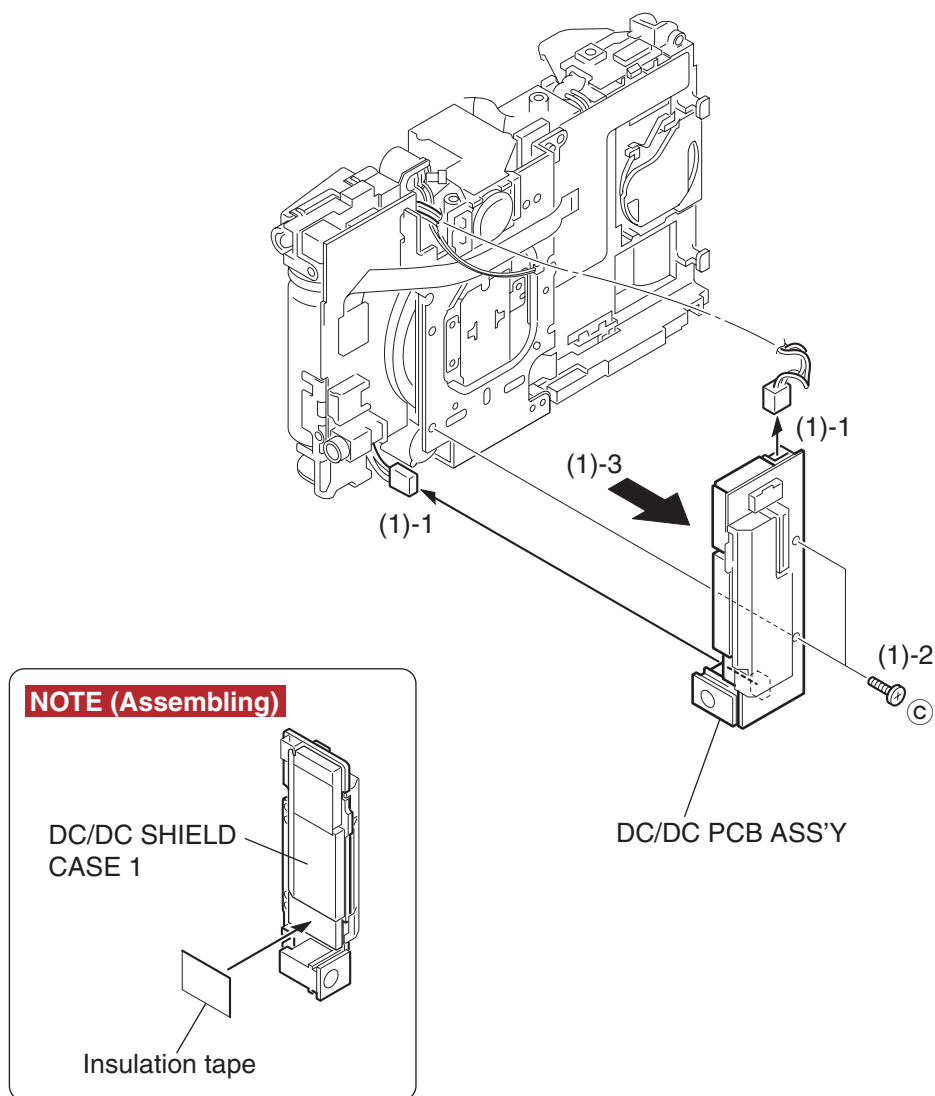


Fig. 3-9 DC/DC PCB ASS'Y

2.7 DC/DC PCB ASS'Y

(1) DC/DC PCB ASS'Y

1. Disconnect the two connectors.
2. Remove the two screws.
3. Remove the DC/DC PCB ASS'Y in the direction of arrow.

NOTE (Assembling)

Attach the insulation tape to the DC/DC SHIELD CASE 1.

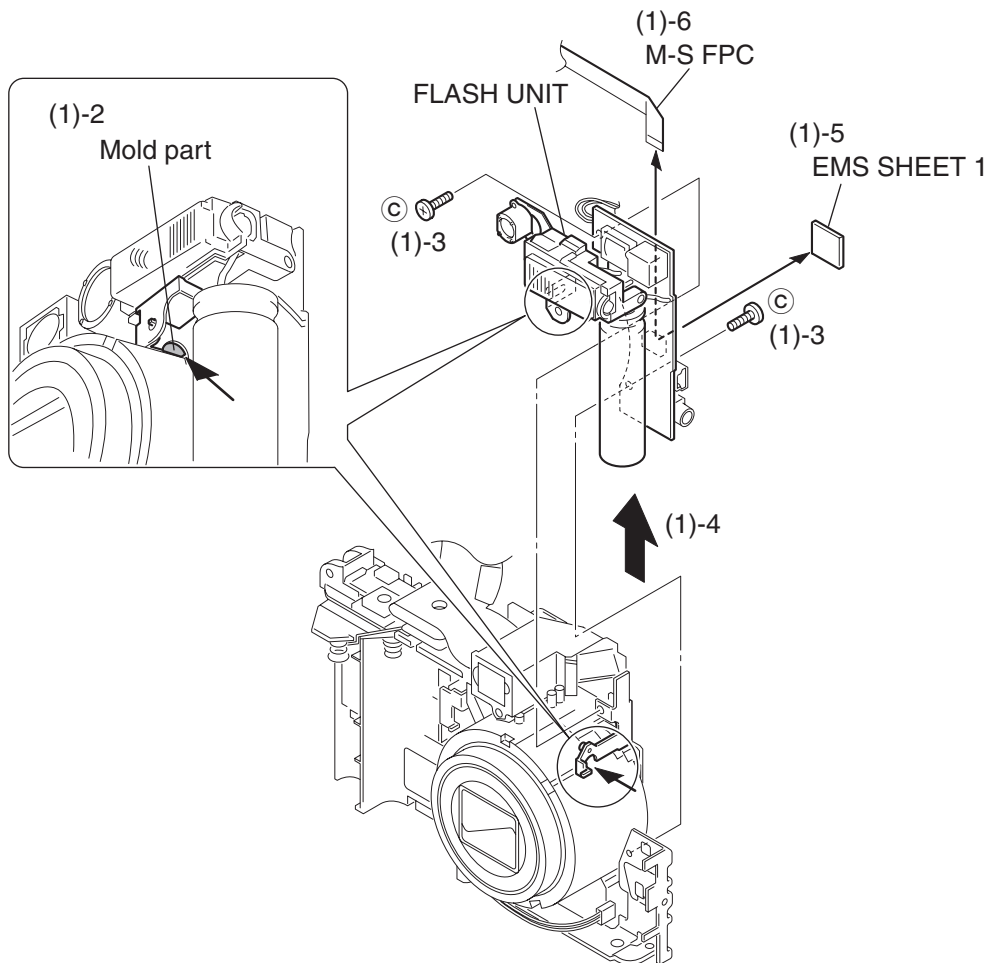


Fig. 3-10 FLASH UNIT

2.8 FLASH UNIT

(1) FLASH UNIT

1. Remove the HIGH VOLTAGE CAUTION TAPE.
2. Remove the mold part of the FLASH UNIT from the dowel with the sharp point tweezers or the like.
3. Remove the two screws. (One screw from the front and the other from the rear.)
4. Remove the FLASH UNIT by sliding it.
5. Remove the EMS SHEET 1.
6. Remove the M-S FPC.

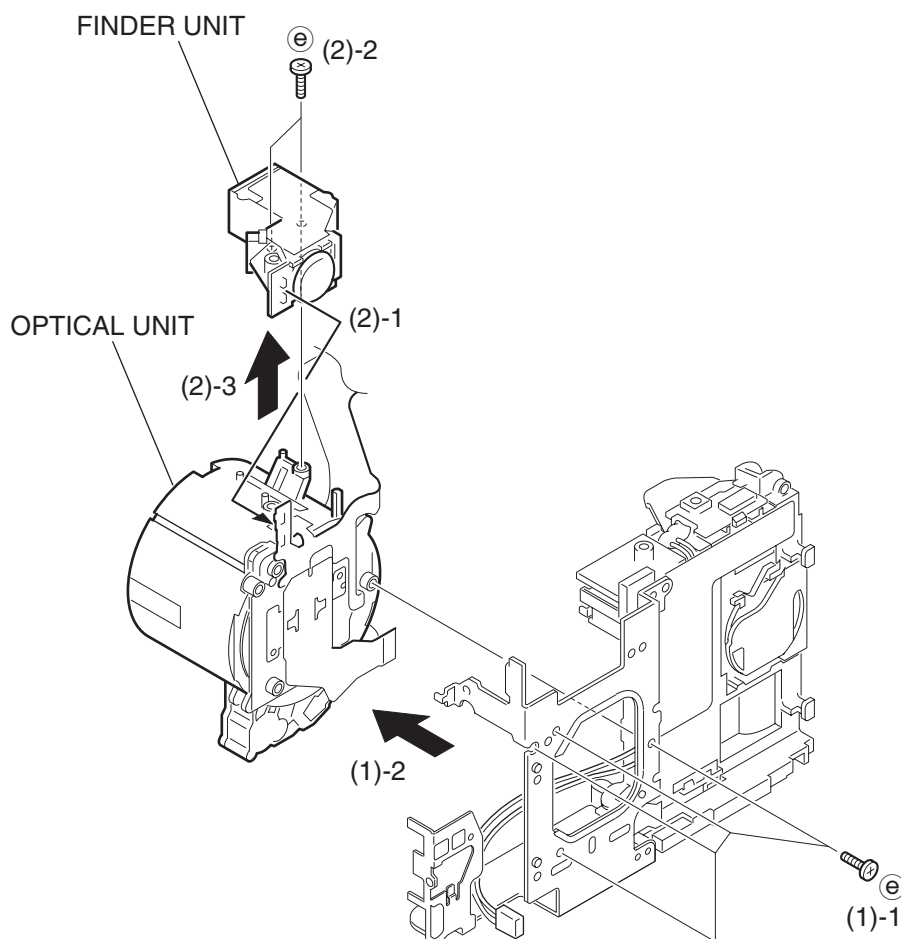


Fig. 3-11 OPTICAL UNIT, FINDER UNIT

2.9 OPTICAL UNIT, FINDER UNIT

(1) OPTICAL UNIT

1. Remove the four screws.
2. While taking care of flexible printed wired board, remove the OPTICAL UNIT in the direction of arrow.

(2) FINDER UNIT

1. Remove the flexible printed wired board.
2. Remove the two screws.
3. Remove the FINDER UNIT in the direction of arrow.

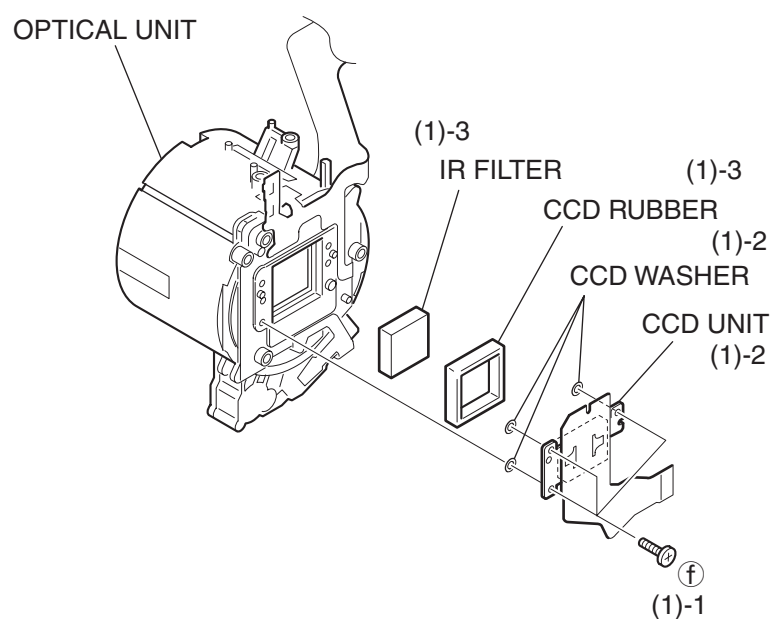


Fig. 3-12 CCD UNIT

2.10 CCD UNIT

(1) CCD UNIT

1. Remove the three screws.
* Use the HAND DRILL BIT (CY9-1548-000).
2. Remove the CCD UNIT.

CAUTION

Be careful not to drop the washers.

3. Remove the CCD RUBBER, IR FILTER.

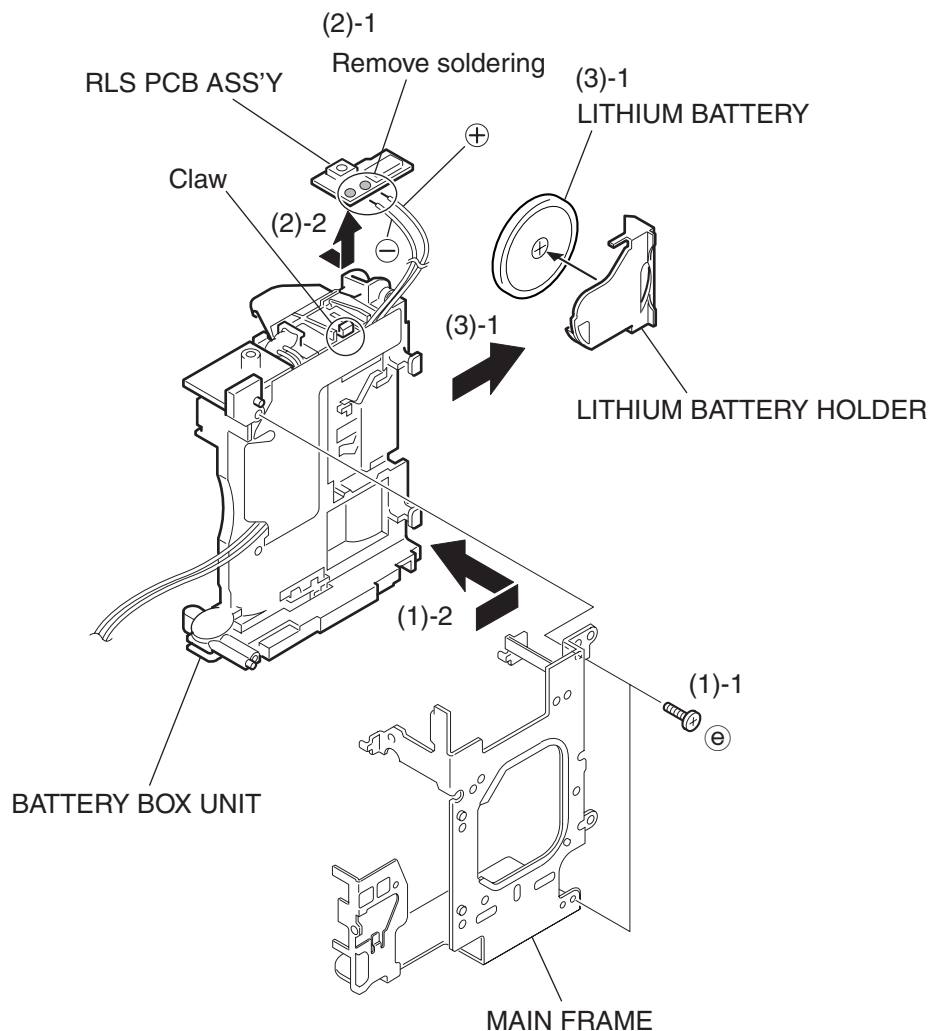


Fig. 3-13 BATTERY BOX UNIT, RLS PCB ASS'Y, LITHIUM BATTERY HOLDER

2.11 BATTERY BOX UNIT, RLS PCB ASS'Y, LITHIUM BATTERY HOLDER

(1) BATTERY BOX UNIT

1. Remove the two screws.
2. Remove the BATTERY BOX UNIT in the direction of arrow.

(2) RLS PCB ASS'Y

1. Remove soldering. (\oplus : red, \ominus : black)
2. Release the claws and remove the RLS PCB ASS'Y in the direction of arrow.

(3) LITHIUM BATTERY HOLDER

1. Remove the LITHIUM BATTERY from the LITHIUM BATTERY HOLDER.

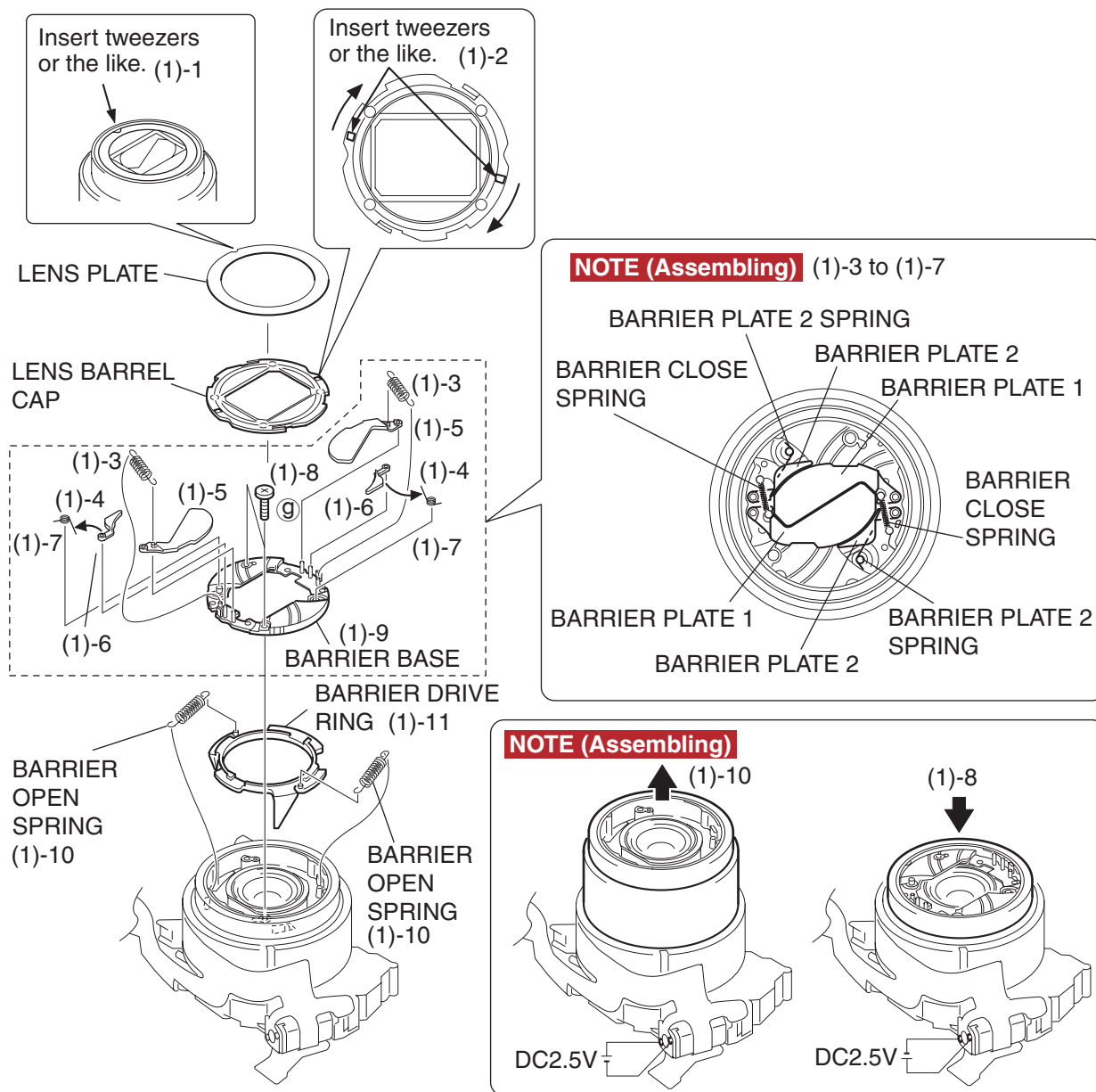


Fig. 3-14 OPTICAL UNIT

2.12 OPTICAL UNIT

(1) OPTICAL UNIT

1. Remove the LENS PLATE by inserting tweezers or the like into its groove.
2. Insert tweezers or the like to the LENS BARREL CAP. Rotate it in the clockwise direction and remove it.
3. Remove the BARRIER CLOSE SPRING (2 pieces).
4. Remove an end of the BARRIER PLATE 2 SPIRNG (2 pieces) and loosen the fastening of the BARRIER PLATE 2.
5. Remove the BARRIER PLATE 1 (2 pieces).
6. Remove the BARRIER PLATE 2 (2 pieces).
7. Remove the BARRIER PLATE 2 SPIRNG (2 pieces).
8. Remove the two screws.

NOTE (Assembling) Apply the voltage (DC 2.5V) across the motor terminal to drive the motor until the motor stops and the BARREL is fully comes out.

9. Remove the BARRIER BASE.

10. Remove the BARRIER OPEN SPRING (2 pieces).

NOTE (Assembling) Apply the voltage (DC 2.5V) across the motor terminal to drive the motor until the motor stops and the BARREL is full housed.

11. Remove the BARRIER DRIVE RING.

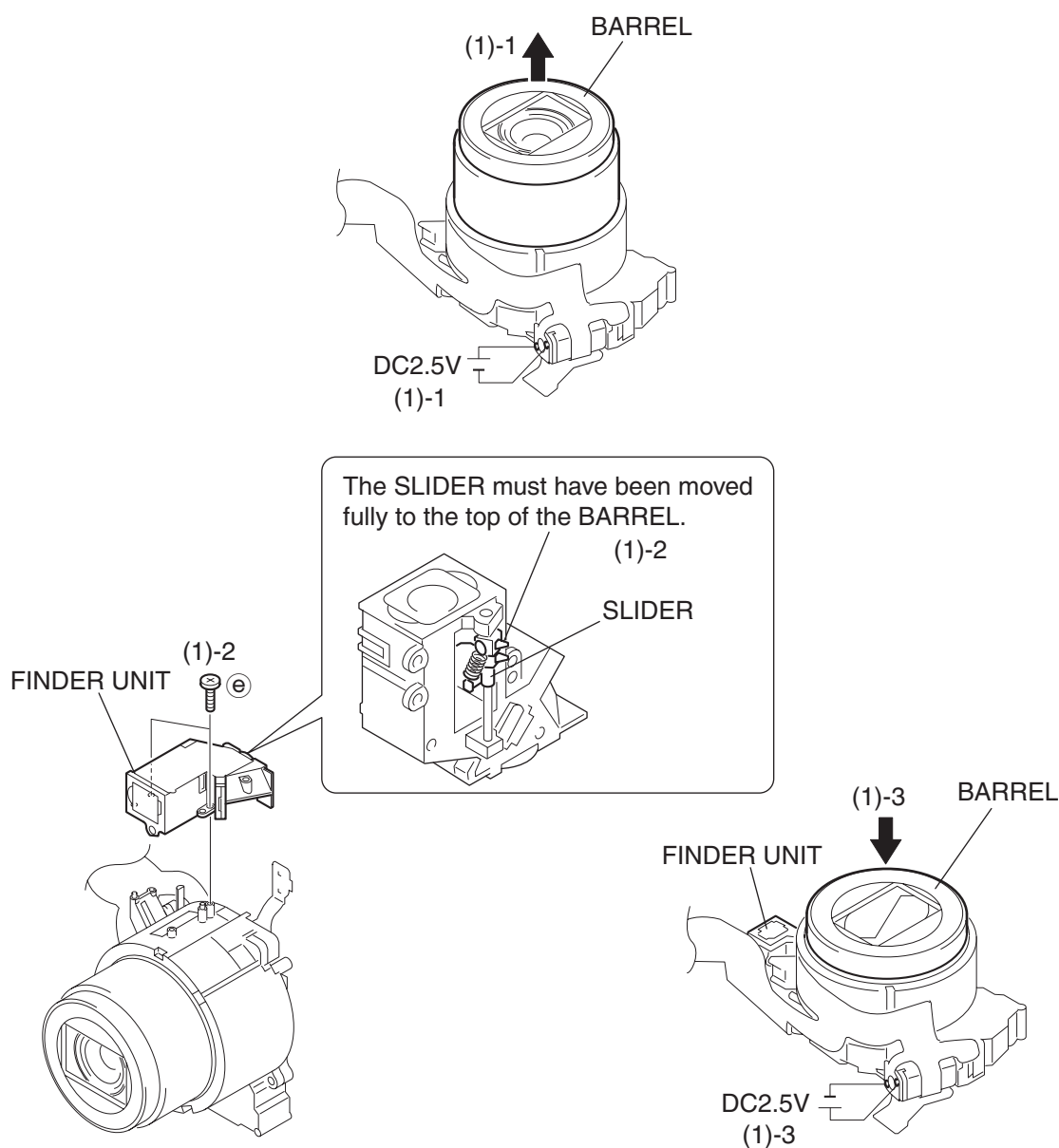


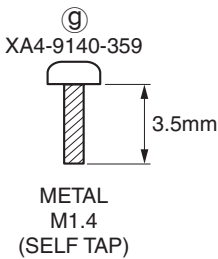
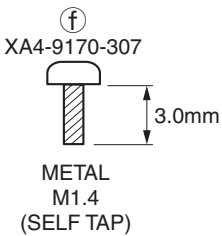
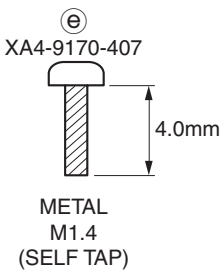
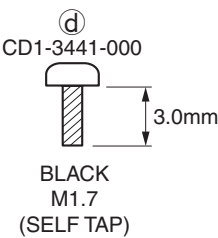
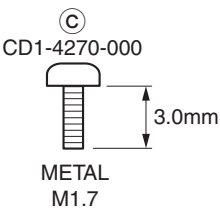
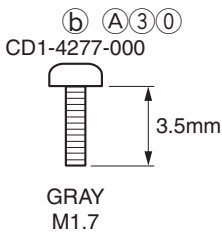
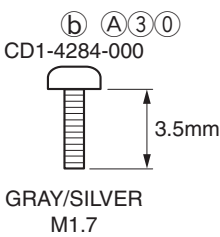
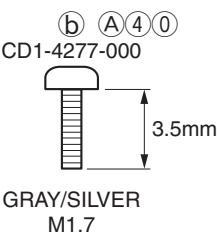
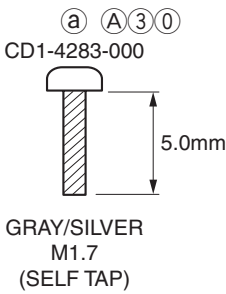
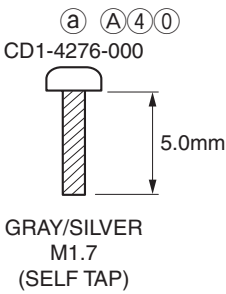
Fig. 3-15 Assembling the FINDER UNIT

2.13 Assembling the FINDER UNIT

(1) Assembling the FINDER UNIT

1. Apply the voltage (DC 2.5V) across the motor terminal to drive the motor until the motor stops and the **BARREL** fully comes out.
2. Move the **SLIDER** fully to the top of the **BARREL** and secure it with the two screws.
3. Apply the voltage (DC 2.5V) across the motor terminal to drive the motor until the motor stops and the **BARREL** is full housed.

2.14 Screw List



3. Adjustments

3.1 Replacement Parts and Adjustment Items

PowerShot A30/A40 requires electrical adjustments when certain parts are replaced.

The table below indicates the adjustments required for the respective part replacements.

For all other parts not listed below, no electrical adjustments are necessary after replacement.

Adjustment Items Replacement Part	CCD Adjustment	Optical Unit Adjustment	Imaging Process Adjustment	Pixel Dot Adjustment	Flash Adjustment
BATTERY BOX UNIT					
DC/DC PCB ASS'Y					
CCD UNIT	● #1		● #2	● #3	● #4
OPTICAL UNIT		●			
FLASH UNIT					●
MAIN PCB ASS'Y	○	○	○	○	○
LCD PANEL					

BACK LIGHT UNIT

● : Adjustment is necessary after replacement.

○ : Adjustment is necessary after replacement.

(Adjustment is not necessary, only if the adjustment data has been saved and then transferred after the part is replaced.)

Blank : Adjustment is unnecessary.

* When CCD UNIT is replaced, adjust certainly at the procedure as below.

#1. CCD Adjustment

#2. Imaging Process Adjustment

#3. Pixel Dot Adjustment

#4. Flash Adjustment

3.2 Adjustment Tools

The following tools are required for electrical adjustment.

DESCRIPTION	PARTS NO.	REMARKS
PC/AT-Compatible Machine (Windows98 pre-installed Model, USB port)	—	Local purchase
Adjustment Software (CD-ROM)	CY8-4375-031	CD-ROM, SERVICE MANUAL (J/E)
Compact Power Adapter CA-PS500	—	Enclosed in camera kit (or Local purchase)
INTERFACE CABLE IFC-300PCU (USB Cable)	—	(or Local purchase)
Brightness Box (light source A)	—	Local purchase
Color Viewer (5600° K)	DY9-2039-100	(or Local purchase)
Standard Color Bar Chart	DY9-2002-000	(or Local purchase)
Standard 18% Gray Chart	CY4-6016-000	CHART, 18%GRAY
Zoom /AF Chart	—	*1
W-10 Filter	CY9-1543-000	(or Local purchase)
C-12 Filter *2	DY9-2029-000	(or Local purchase)
ND-4 Filter	—	Local purchase
ND-8 Filter	—	Local purchase
Light-Shielding Cloth (500 × 500 or larger)	—	Local purchase
Tripod	—	Local purchase

*1 Print the Auto Focus Chart on the legal size paper from the “Zoom_AFChart_Legal.pdf” (in the folder of this CD-ROM, :\Adjust\Chart).

Print the Auto Focus Chart on the A3 size paper from the “Zoom_AFChart_A3.pdf”.

*2 2pcs. required.

3.3 Before Starting Electrical Adjustments

3.3.1 TWAIN Driver Installation

Install the USB Driver for Adjustment in the CD-ROM to PC.

(“This Adjustment Software” is impossible when the RS-232C TWAIN driver is used.)

3.3.2 Installing the Adjustment Software

1. Double click the icon on the launcher screen or a file in the CD-ROM. (Model name of the camera that you are going to adjust and the name of the adjustment software are different.)

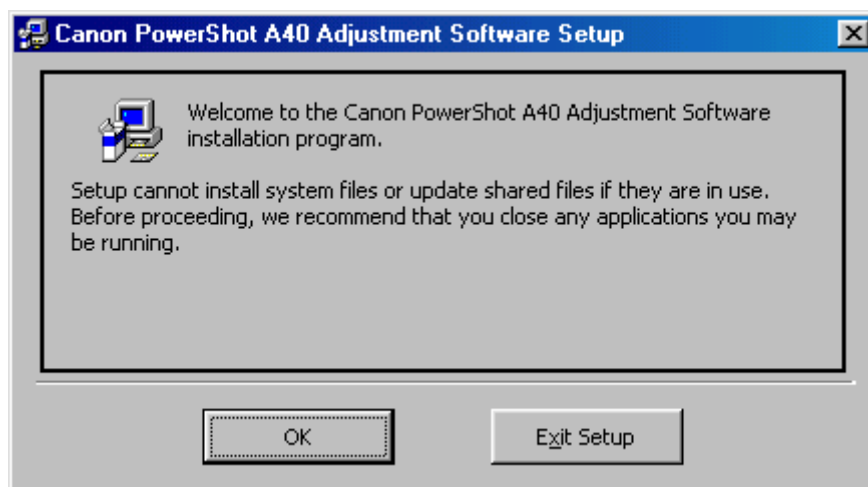
A40

Camera Type		Adjustment Software	
Destination	Third place of Serial No.	Icon	File Path
USA/Europe/Canada	2/3/5	A40_USA_Adj.	\Adjust\A40\USA\Setup.exe
OTH (Asia/Oceania)	4	A40_OTH_Adj.	\Adjust\A40\OTH\Setup.exe

A30

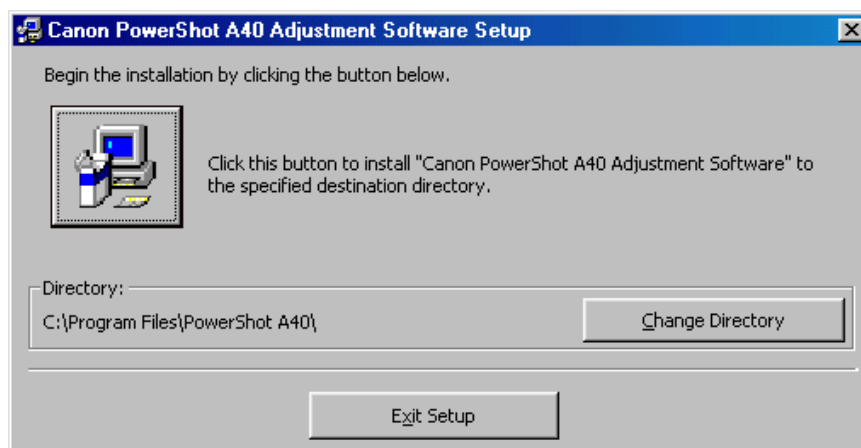
Camera Type		Adjustment Software	
Destination	Third place of Serial No.	Icon	File Path
USA/Europe/Canada	2/3/5	A30_USA_Adj.	\Adjust\A30\USA\Setup.exe
OTH (Asia/Oceania)	4	A30_OTH_Adj.	\Adjust\A30\OTH\Setup.exe

2. When the dialog box below appears, click the “OK” button.

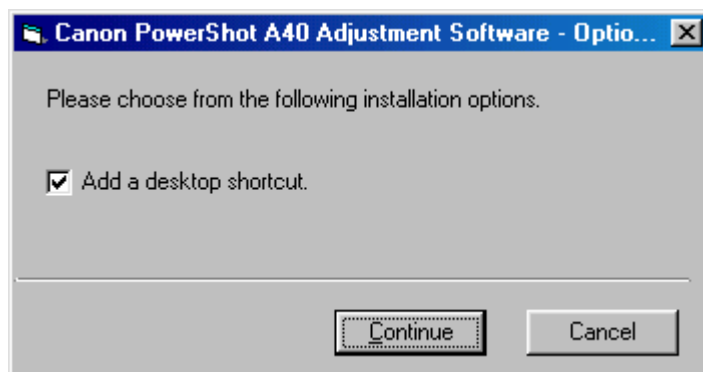


* All figures for the Adjustment Software are examples of the PowerShot A40.

3. When the dialog box below appears, click the  button. (Software installation will then begin.)



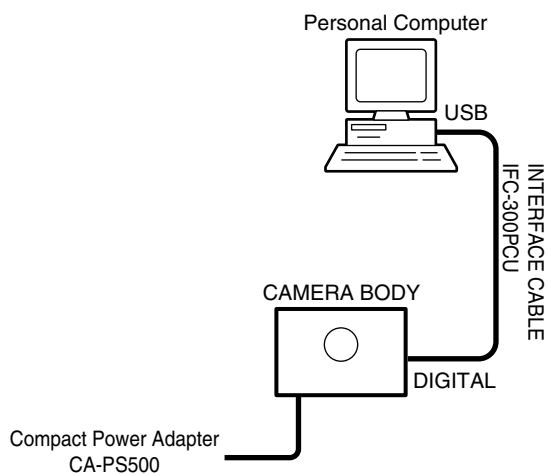
4. When the dialog box below appears, click the "Continue" button.
(In the case that you do not add a shortcut on desktop, remove clicking from the check box.)



3.3.3 Preparation

Before starting up the Adjustment Software, follow the preparatory steps below:

1. Obtain all the tools necessary for the adjustment.
2. Connect the Camera to the Power Source with the Compact Power Adapter CA-PS500.
3. Set the Replay Mode on the camera and turn on.



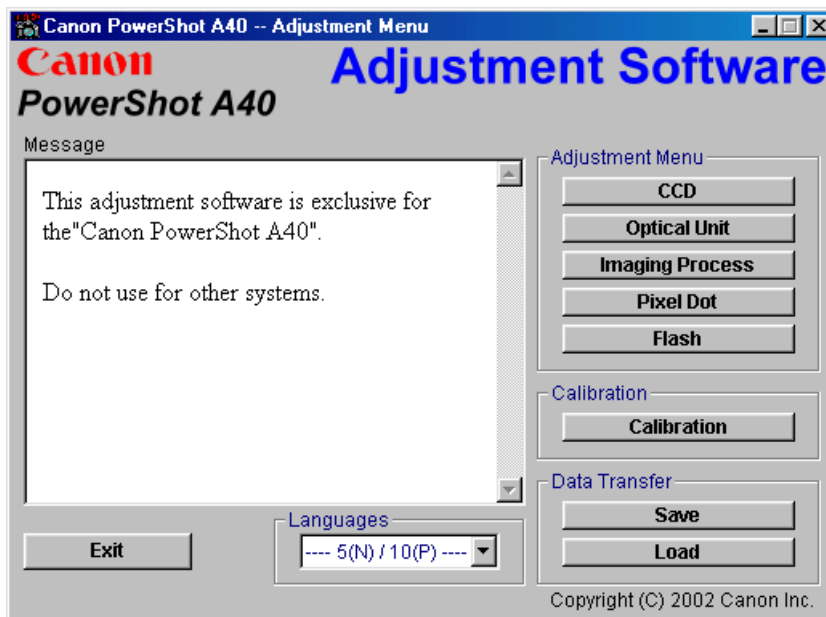
4. Connect the Camera's Digital terminal to the PC's USB Port with INTERFACE CABLE IFC-300 PCU.
 5. Turn on the camera.
- Note:** Perform the preparation in the following order otherwise the camera won't work properly.

3.3.4 Starting up the Adjustment Software

After completing the preparatory steps, click Start and move the cursor to Program; then select Canon Digital Camera and click PowerShot A30/A40 Adjustment.

3.3.5 Menu Window

When the Adjustment Software starts up, the Menu Window below will appear.



3.3.6 How to Use the Adjustment Software

Calibration/Adjustment

For starting, click the button related with adjustment.

- * Whenever you use your light source for the adjustment for the first time, be sure to click the “Calibration” Button.

Quitting the Adjustment Software

Click the “Exit” button.

Saving or Loading data

- “Save” button : This button saves all adjustment data stored on the camera in text format.
- “Load” button : This button loads all adjustment data saved in text format to the camera.

Saving or Loading data

- “Save” button : This button saves all adjustment data stored on the camera in text format.
- “Load” button : This button loads all adjustment data saved in text format to the camera.

Notes


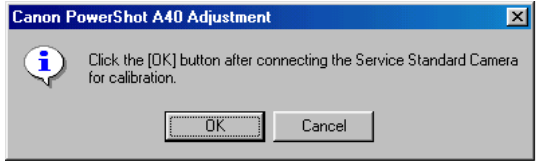
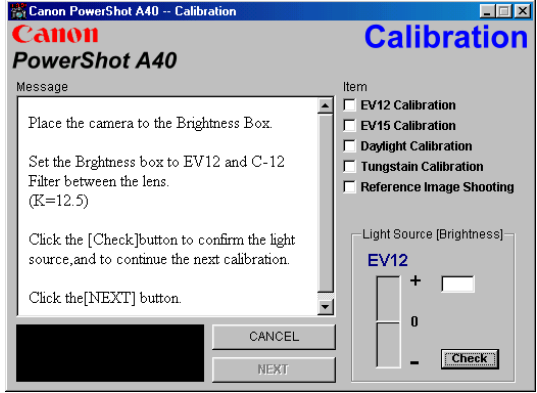
- If the adjustment fails, a message indicating the failure will appear on each product. If this happens, do the adjustment again.
- The Adjustment Software is dedicated only to Canon Digital Camera PowerShot A30/A40. Never use it for any other camera.
- The Windows98/2000 must be pre-installed on the computer that is equipped with the USB terminal. (Windows95 does not support the USB.)
 - * The operation with the WinMe, etc. is not guaranteed.

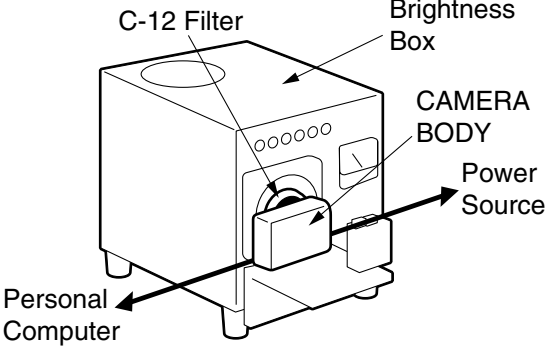
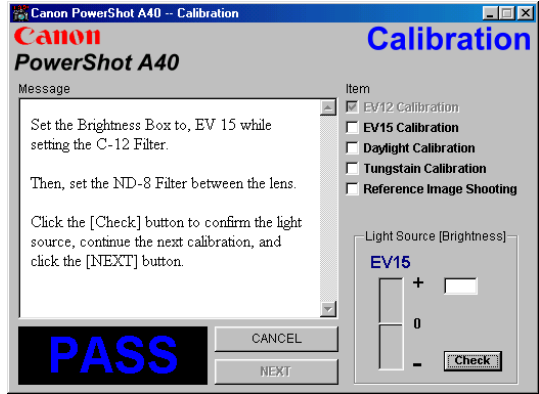
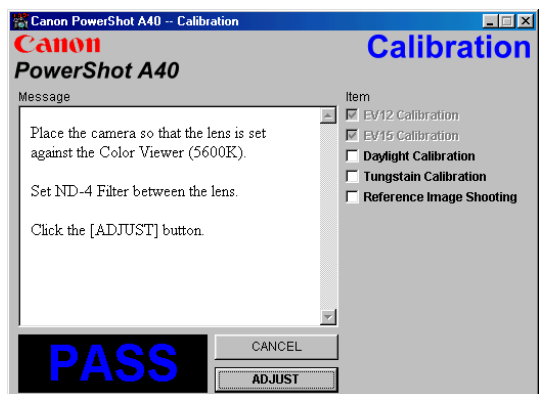
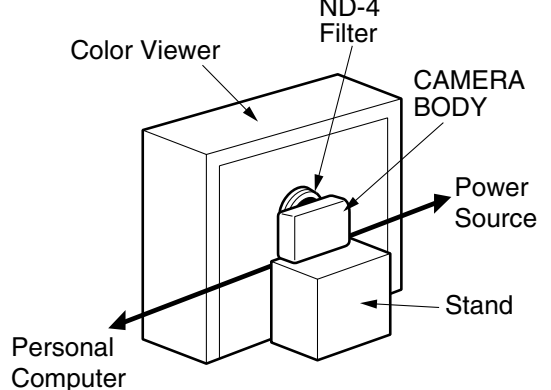
3.4 Calibration

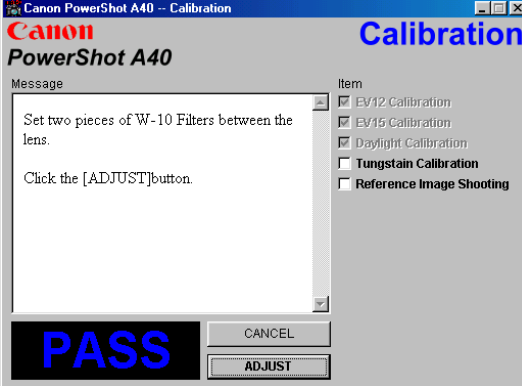
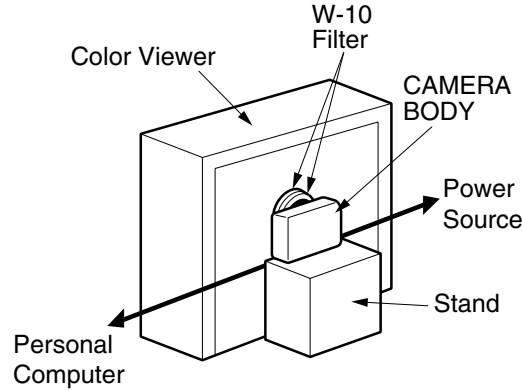
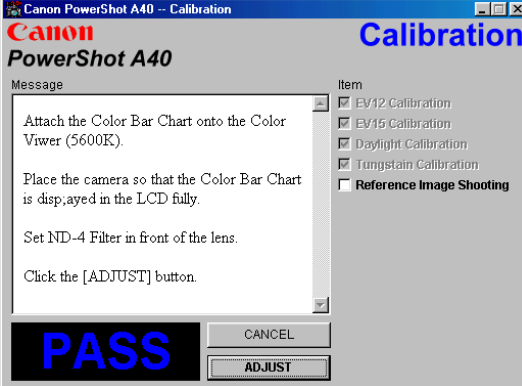
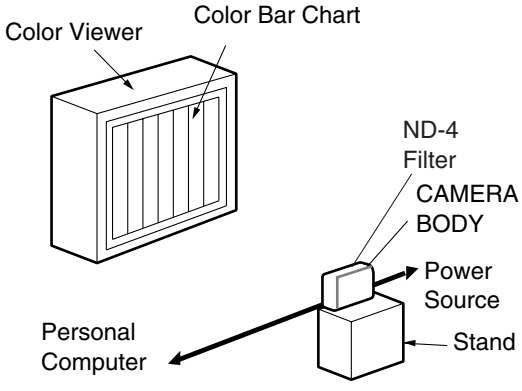
3.4.1 Calibration

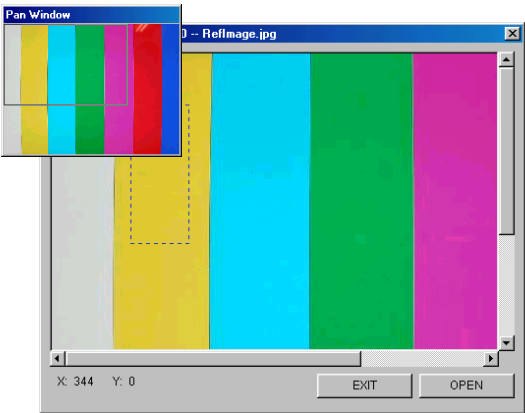
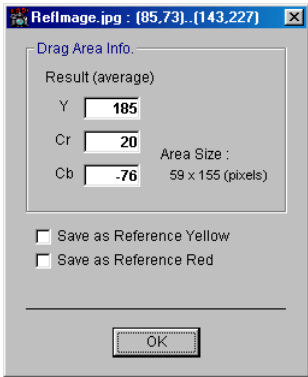
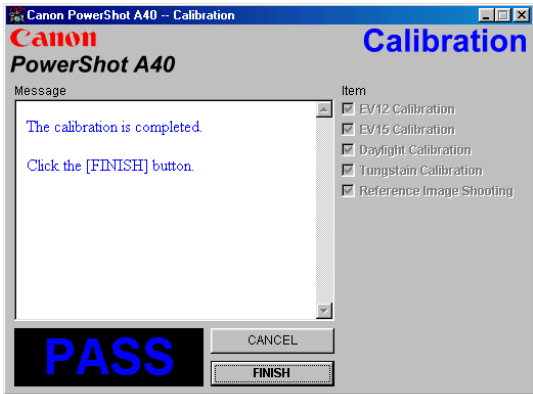
■ Tools Used

- Reference Camera (Merchandise)
- Compact Power Adapter CA-PS500
- Adjustment Software
- W-10 Filter (2pcs.)
- Personal Computer
- Color Viewer (5600° K)
- C-12 Filter
- INTERFACE CABLE IFC-300PCU
- ND-8 Filter
- ND-4 Filter

1	Click the “Calibration” button.	
2	<ol style="list-style-type: none"> 1. When the message on the right appears, check that the reference camera (Merchandise) is connected to the computer. 2. Click the “OK” button. 	
3	When the message on the right appears, go to 4.	

<p>4</p>	<ol style="list-style-type: none"> 1. Place the camera so that lens is set against the light source surface of the Brightness Box via the C-12 Filter. 2. Set the Brightness Box to EV12. 3. Click the “Check” button. 4. Check the Brightness level if it is within 0 ± 5. * If not, calibrate the Brightness Box until it becomes within 0 ± 5. 5. Click the “NEXT” button. 	
<p>5</p>	<ol style="list-style-type: none"> 1. When the message on the right appears, Set the Brightness Box to EV15 and attach the ND-8 Filter while setting the C-12 Filter between the lens. 2. Click the “Check” button. 3. Check the Brightness level if it is within 0 ± 5. * If not, calibrate the Brightness Box until it becomes within 0 ± 5. 4. Click the “NEXT” button. 	
<p>6</p>	<p>When the message on the right appears go to 7.</p>	
<p>7</p>	<ol style="list-style-type: none"> 1. Attach the ND-4 Filters between the Lens and the Color Viewer. 2. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button. 	

8	<p>When the message on the right appears go to 9.</p>	
9	<ol style="list-style-type: none"> 1. Remove the ND-4 Filter. 2. Attach the two W-10 Filters between the Lens and the Color Viewer. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button. 	
10	<p>When the message on the right appears go to 11.</p>	
11	<ol style="list-style-type: none"> 1. Attach the Color Bar Chart to the Color Viewer. Place the camera so that the Viewing image of the color bar chart is the full of LCD with the ND-4 Filter attached. 3. Click the “ADJUST” button. 	


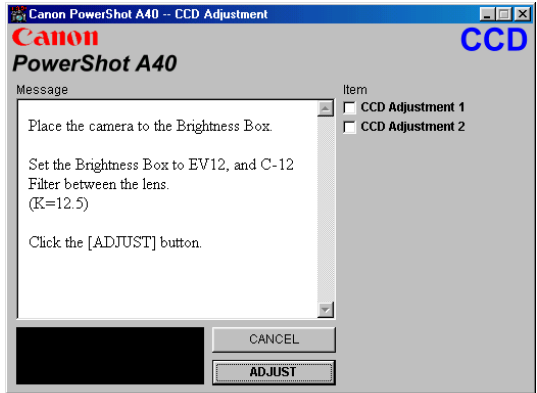
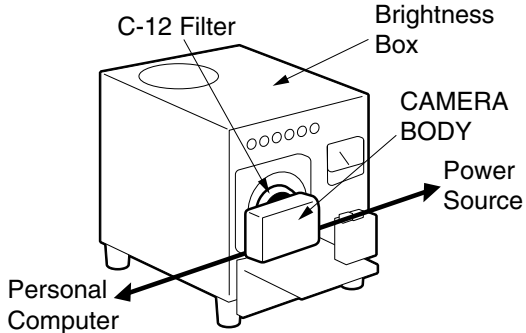
12	Point and drag the shot yellow area to be measured with mouse.	
13	Check "Save as Reference Yellow (or Red)" click the "OK" button. Measure "RED" referring to the procedures from the above.	
14	When the message on the right appears, click the "FINISH" button. (This ends the "Calibration".)	

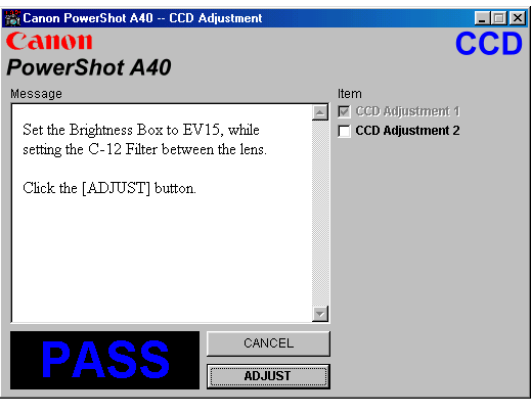
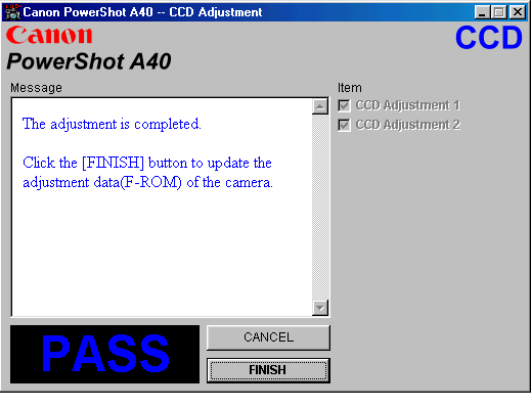
3.5 Adjustment Procedure

3.5.1 CCD Adjustment

■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- Brightness Box (light source A)
- Adjustment Software
- Compact Power Adapter CA-PS500
- C-12 Filter


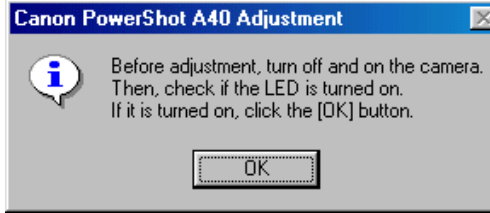
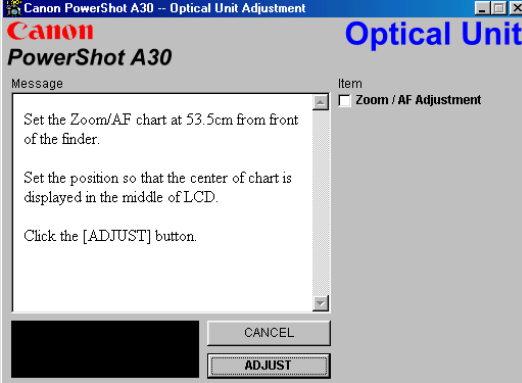
1	Click the “CCD” button.	
2	When the message on the right appears, go to 3.	
3	<ol style="list-style-type: none"> 1. Place the camera so that lens is set against the light source surface of the Brightness Box via the C-12 Filter. 2. Set the Brightness Box to EV12. 3. Click the “ADJUST” button. 	

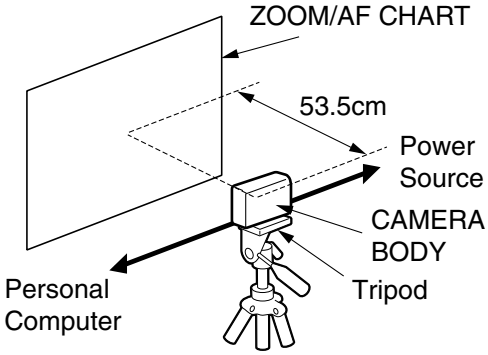
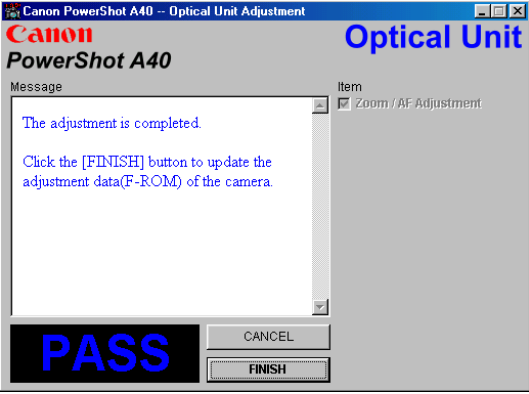
4	<p>When the message on the right appears, Set the Brightness Box to EV15 while setting the C-12 Filter between the lens.</p> <p>Click the “ADJUST” button.</p>	 <p>The screenshot shows the 'Canon PowerShot A40 - CCD Adjustment' window. The title bar includes the Canon logo and 'PowerShot A40'. The window is divided into a 'Message' pane on the left and an 'Item' pane on the right. The 'Message' pane contains the text: 'Set the Brightness Box to EV15, while setting the C-12 Filter between the lens. Click the [ADJUST] button.' The 'Item' pane has two checkboxes: 'CCD Adjustment 1' (checked) and 'CCD Adjustment 2' (unchecked). At the bottom left, a large blue 'PASS' label is visible. At the bottom right, there are 'CANCEL' and 'ADJUST' buttons.</p>
5	<p>When the message on the right appears, click the “FINISH” button.</p> <p>(This ends the “CCD” Adjustment.)</p>	 <p>The screenshot shows the 'Canon PowerShot A40 - CCD Adjustment' window. The title bar includes the Canon logo and 'PowerShot A40'. The window is divided into a 'Message' pane on the left and an 'Item' pane on the right. The 'Message' pane contains the text: 'The adjustment is completed. Click the [FINISH] button to update the adjustment data(F-ROM) of the camera.' The 'Item' pane has two checkboxes: 'CCD Adjustment 1' (checked) and 'CCD Adjustment 2' (checked). At the bottom left, a large blue 'PASS' label is visible. At the bottom right, there are 'CANCEL' and 'FINISH' buttons.</p>

3.5.2 Optical Unit Adjustment

■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- ZOOM/AF Chart
- Tripod
- Adjustment Software
- Compact Power Adapter CA-PS500

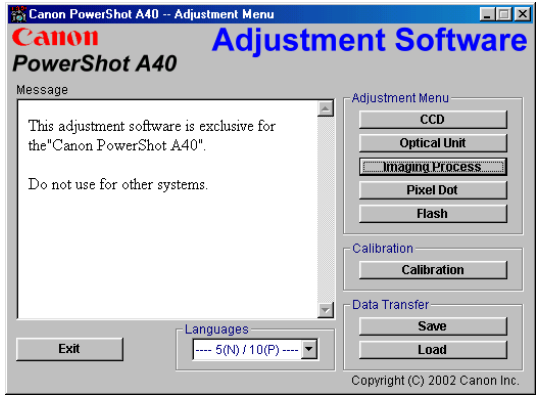
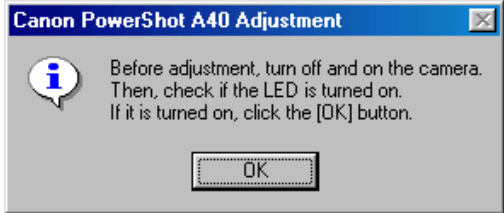
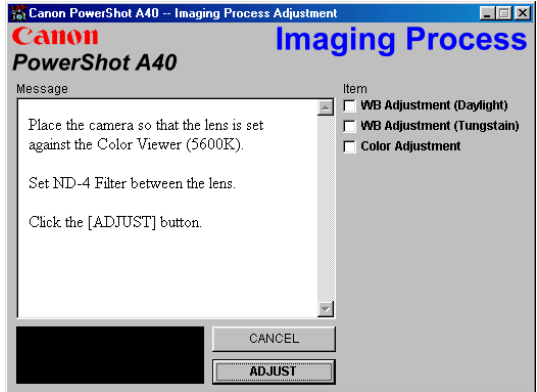
1	Click the “Optical Unit” button.	
2	When the message on the right appears, turn off/on the camera. Click the “OK” button.	
3	When the message on the right appears, go to 4.	

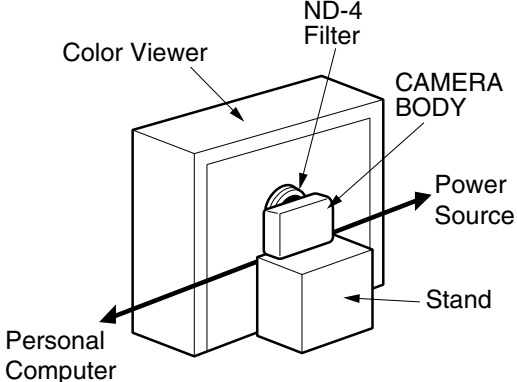
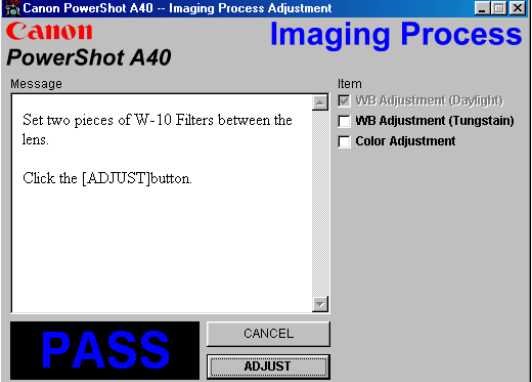
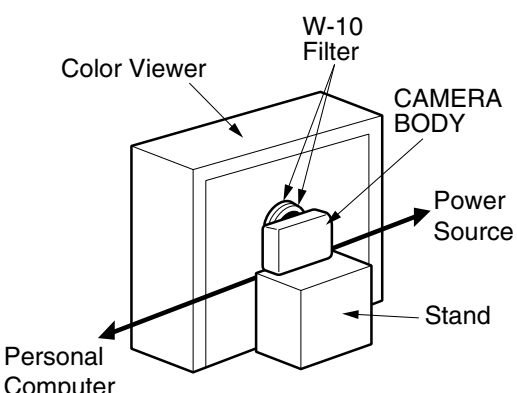
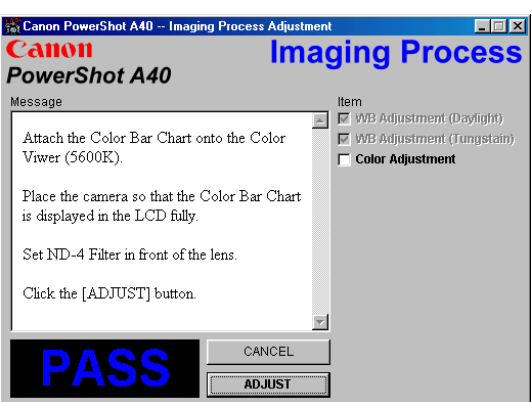
4	<div>1. Place the Zoom Chart at 53.5cm away from the front of the camera finder. * Place the Auto Focus Chart on a plain color wall or equivalent. * Adjust the light so that the brightness of the chart will be about EV8.5.</div> <div>2. Adjust the position of the camera finely so that the center of the Auto Focus Chart is aligned with the center of the LCD.</div> <div>3. Click the “ADJUST” button.</div> <div>* When the adjustment does not work, click the “Default” button.</div>	
5	<div>When the message on the right appears, click the “FINISH” button.</div> <div>(This ends the “Optical Unit” Adjustment.)</div>	

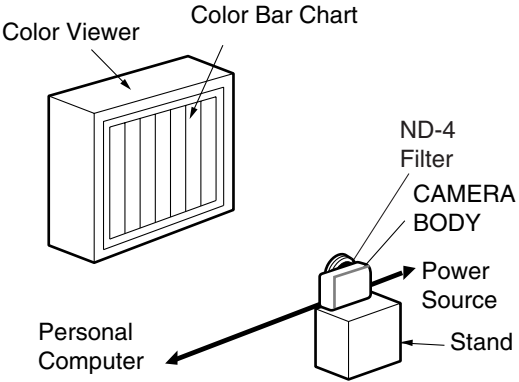
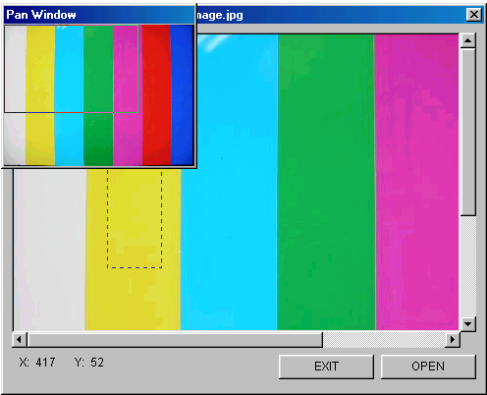
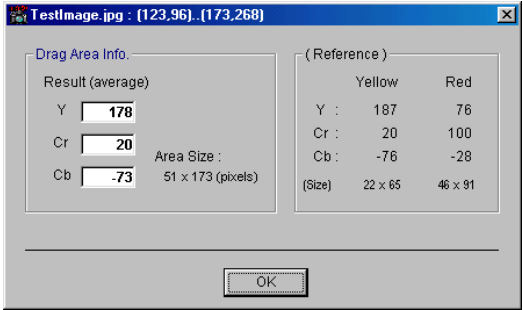
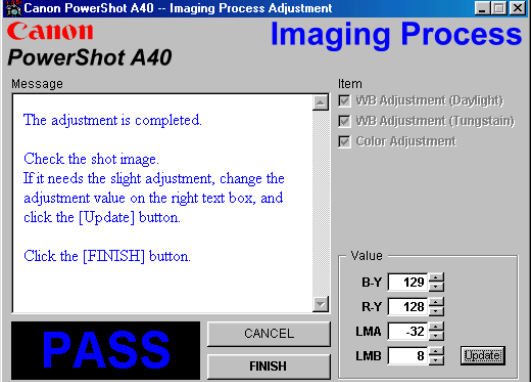
3.5.3 Imaging Process Adjustment

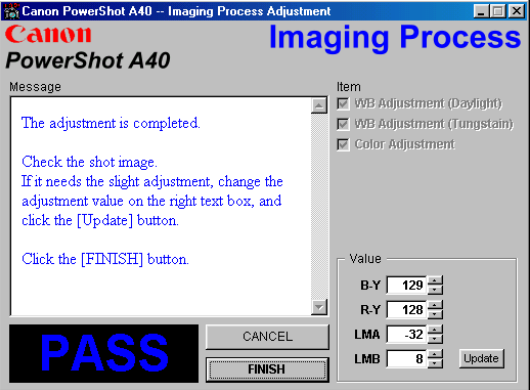
■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- Brightness Box (light source A)
- Compact Power Adapter CA-PS700
- Color Viewer (5600° K)
- Adjustment Software
- W-10 Filter (2 pcs.)
- Light-Shielding Cloth
- DC Coupler DR-700
- Color Bar Chart
- ND-4 Filter

1	Click the “Imaging Process” button.	
2	When the message on the right appears, turn off/on the camera. Click the “OK” button.	
3	When the message on the right appears, go to 4.	

4	<ol style="list-style-type: none"> 1. Attach the ND-4 Filters between the Lens and the Color Viewer. 2. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button. 	 <p>Diagram illustrating the setup for step 4. The components shown are: Color Viewer, ND-4 Filter, CAMERA BODY, Power Source, Stand, and Personal Computer.</p>
5	<p>When the message on the right appears, go to 6.</p>	 <p>Canon PowerShot A40 – Imaging Process Adjustment</p> <p>Imaging Process</p> <p>Message</p> <p>Set two pieces of W-10 Filters between the lens.</p> <p>Click the [ADJUST] button.</p> <p>Item</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> WB Adjustment (Daylight) <input checked="" type="checkbox"/> WB Adjustment (Tungstain) <input type="checkbox"/> Color Adjustment <p>PASS CANCEL ADJUST</p>
6	<ol style="list-style-type: none"> 1. Remove the ND-4 Filter. 2. Attach the two W-10 Filters. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button. 	 <p>Diagram illustrating the setup for step 6. The components shown are: Color Viewer, W-10 Filter, CAMERA BODY, Power Source, Stand, and Personal Computer.</p>
7	<p>When the message on the right appears, go to 8.</p>	 <p>Canon PowerShot A40 – Imaging Process Adjustment</p> <p>Imaging Process</p> <p>Message</p> <p>Attach the Color Bar Chart onto the Color Viwer (5600K).</p> <p>Place the camera so that the Color Bar Chart is displayed in the LCD fully.</p> <p>Set ND-4 Filter in front of the lens.</p> <p>Click the [ADJUST] button.</p> <p>Item</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> WB Adjustment (Daylight) <input checked="" type="checkbox"/> WB Adjustment (Tungstain) <input type="checkbox"/> Color Adjustment <p>PASS CANCEL ADJUST</p>

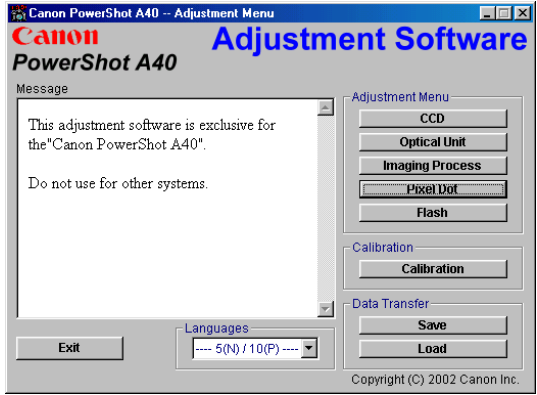
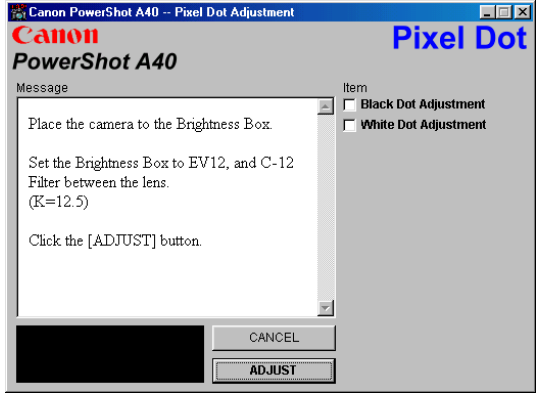
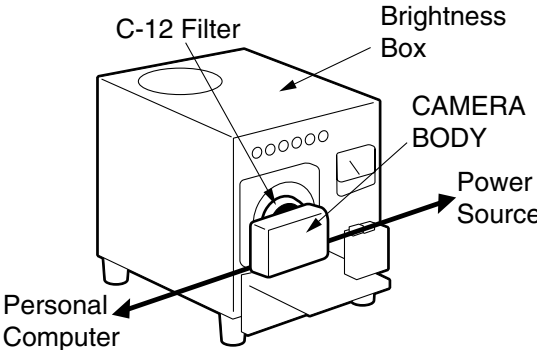
<p>8</p>	<ol style="list-style-type: none"> 1. Attach the Color Bar Chart to the Color Viewer. 2. Place the camera so that the viewing image of the color bar chart is the full of LCD. 3. Click the “ADJUST” button. 	
<p>9</p>	<p>Point and drag the shot yellow area to be measured with mouse.</p>	
<p>10</p>	<ol style="list-style-type: none"> 1. Check “Save as Reference Yellow (or Red)”, and click the “OK” button. * Measure “Red” referring to the procedures from the above. 2. If these data are within specifications, go to 12. * Specification <ul style="list-style-type: none"> Ave_Cr = Reference Camera \pm 10 Ave_Cb = Reference Camera \pm 10 	
<p>11</p>	<ol style="list-style-type: none"> 1. Confirm to see that the image on the PC monitor satisfies the specifications. 2. If the image on the PC monitor does not satisfy the specifications, change the data using UP, DOWN button or change the data directly by typing the data in the text box. Then click the “UPDATE” button. 	

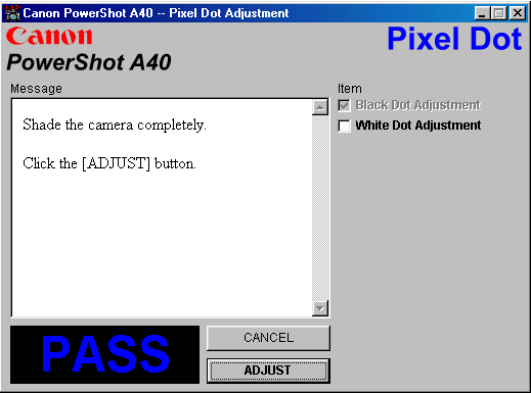
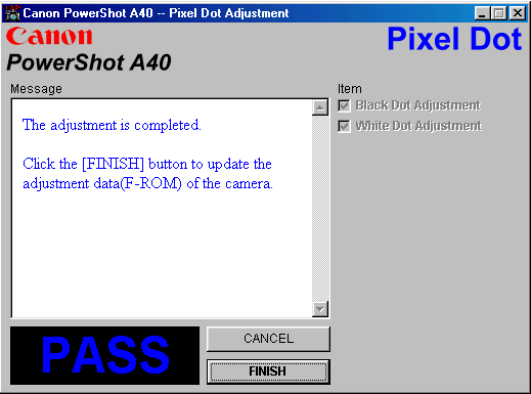
<div data-bbox="172 242 197 268">12</div> <div data-bbox="236 242 743 336">When the adjustment is completed, click the “FINISH” button. (This ends the “Imaging Process” Adjustment.)</div>	
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3.5.4 Pixel Dot Adjustment

■ Tools Used

- Personal Computer
- INTERFACE CABLE IFC-300PCU
- Brightness Box (light source A)
- Color Viewer (5600° K)
- Compact Power Adapter CA-PS500
- Adjustment Software
- C-12 Filter
- Light-Shielding Cloth (500 × 500 or larger)

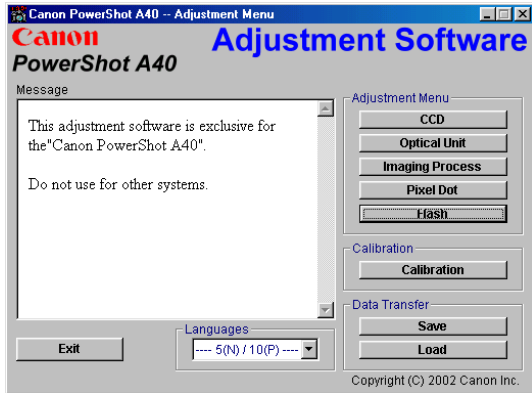
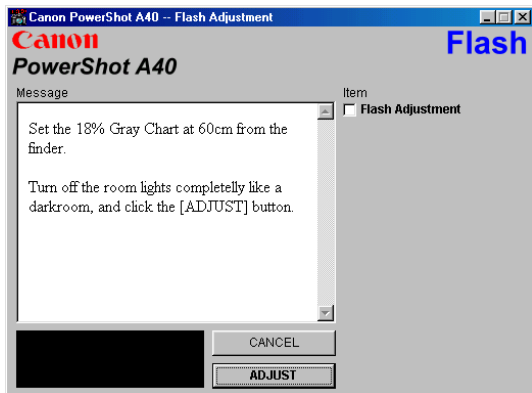
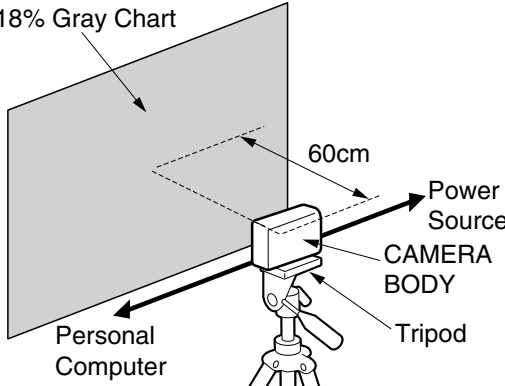
1	Click the “Pixel Dot” button.	
2	When the message on the right appears, go to 3.	
3	<ol style="list-style-type: none"> 1. Place the camera so that lens is set against the light source surface of the Brightness Box via the C-12 Filter. 2. Set the Brightness Box to EV12. 3. Click the “ADJUST” button. 	

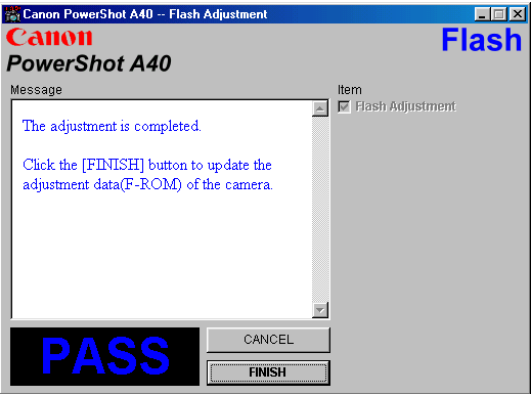
4	<div>1. When the message on the right appears, cover the camera with the Light-Shielding Cloth so that the no light reasons the CCD.</div> <div>2. Click the “ADJUST” button.</div>	 <p>The screenshot shows the 'Canon PowerShot A40 - Pixel Dot Adjustment' window. The title bar includes the Canon logo and 'PowerShot A40'. The main area is titled 'Pixel Dot'. On the left, a 'Message' box contains the text: 'Shade the camera completely.' and 'Click the [ADJUST] button.' On the right, under the 'Item' heading, there are two checkboxes: 'Black Dot Adjustment' (checked) and 'White Dot Adjustment' (unchecked). At the bottom left, a large blue 'PASS' button is visible. To its right are 'CANCEL' and 'ADJUST' buttons.</p>
5	<div>When the message on the right appears, click the “FINISH” button.</div> <div>(This ends the “Pixel Dot” Adjustment.)</div>	 <p>The screenshot shows the same 'Canon PowerShot A40 - Pixel Dot Adjustment' window. The 'Message' box now contains: 'The adjustment is completed.' and 'Click the [FINISH] button to update the adjustment data(F-ROM) of the camera.' The 'Item' section remains the same. At the bottom left, the 'PASS' button is still present. To its right are 'CANCEL' and 'FINISH' buttons.</p>

3.5.5 Flash Adjustment

■ Tools Used

- Personal Computer
- Compact Power Adapter CA-PS500
- Adjustment Software
- 18% Gray Chart

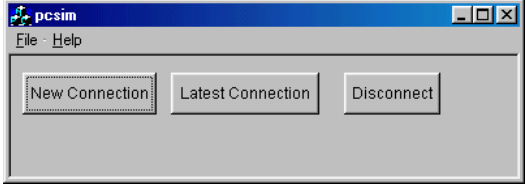
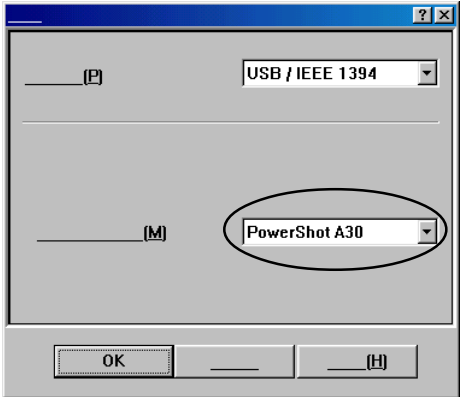
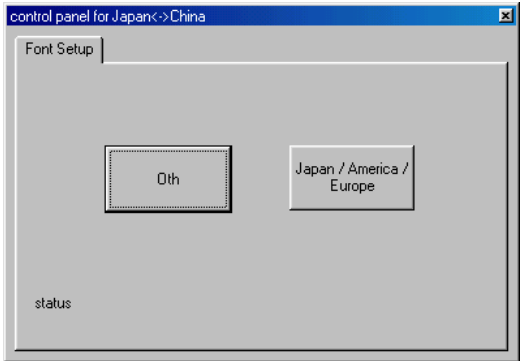
1	Click the “Flash” button.	
2	When the message on the right appears, go to 3.	
3	<p>1. Set 18% Gray Chart 60cm from the Finder front.</p> <p>2. Make the room as dark as a darkroom.</p> <p>3. Click the “ADJUST” button.</p>	

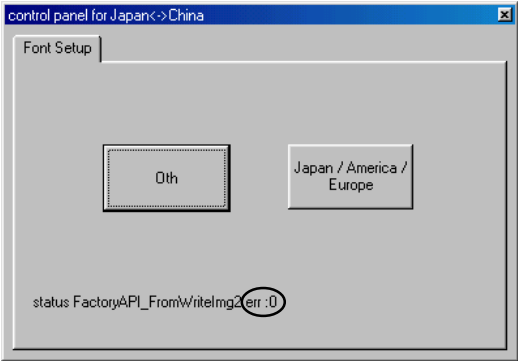
4	<p>When the message on the right appears, click the “FINISH” button. (This ends the “Flash” Adjustment.)</p>	
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3.5.6 Language (For Oth)

■ Tools Used

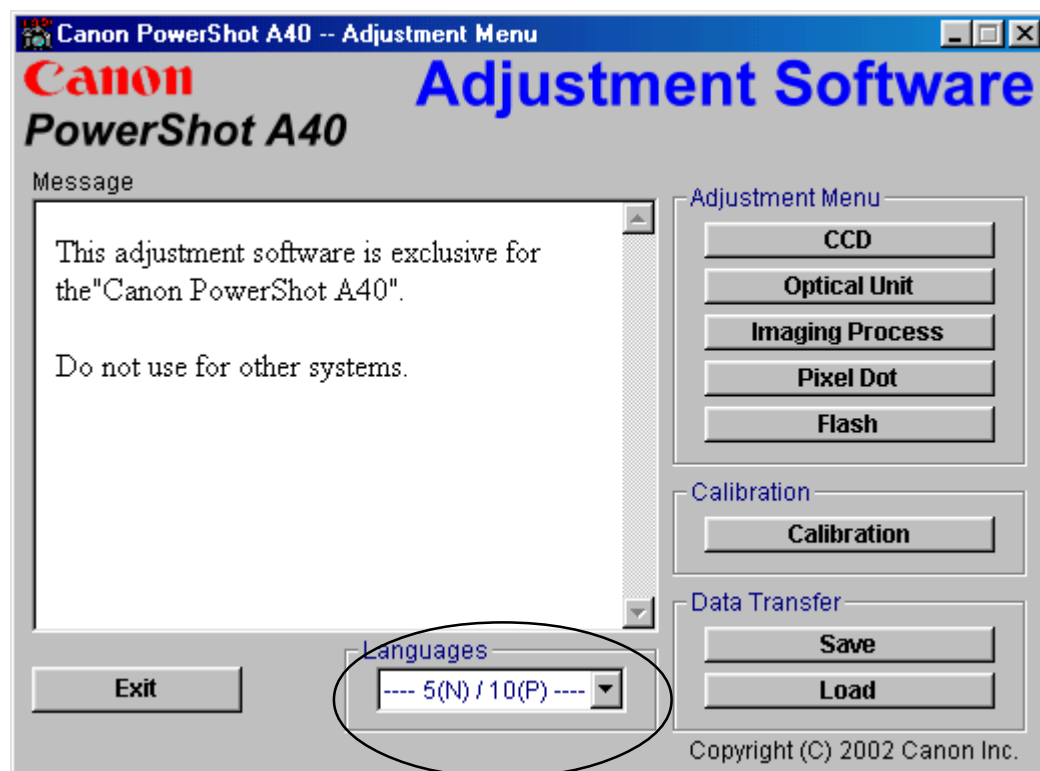
- Personal Computer
- Compact Power Adapter CA-PS500
- INTERFACE CABLE IFC-300PCU
- Adjustment Software (FontSet.exe)

1	Open the “FontSet.exe” and click the “New Connection” button.	 <p>The screenshot shows a window titled 'pcsim' with a menu bar containing 'File' and 'Help'. Below the menu bar are three buttons: 'New Connection', 'Latest Connection', and 'Disconnect'. The 'New Connection' button is highlighted with a dashed border.</p>
2	When the message on the right appears, confirm the model name, and click the “OK” button.	 <p>The screenshot shows a dialog box with a title bar containing a question mark icon. Inside, there are two dropdown menus. The top one is labeled '(P)' and shows 'USB / IEEE 1394'. The bottom one is labeled '(M)' and shows 'PowerShot A30', which is circled. At the bottom are buttons for 'OK', a blank button, and a button labeled '(H)'.</p>
3	When the message on the right appears, click the “Oth” button.	 <p>The screenshot shows a window titled 'control panel for Japan<->China' with a tab labeled 'Font Setup'. Inside, there are two buttons: 'Oth' and 'Japan / America / Europe'. At the bottom left, the word 'status' is displayed.</p>

4	<p>*Make sure to appear “err:0 on the bottom line.</p>	
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3.5.7 Language Settings

It is not required to set the language.



CHAPTER 4. PARTS CATALOG

CONTENTS

PowerShot A40/PowerShot A30

Casing Parts -----	Pg1
Internal Parts-1 -----	Pg2
Internal Parts-2 -----	Pg3
OPTICAL UNIT -----	Pg4
Accessories-1 -----	Pg5
Accessories-2 -----	Pg6
Accessories-3 -----	Pg7
Service Tools-----	Pg8

CLASS凡例

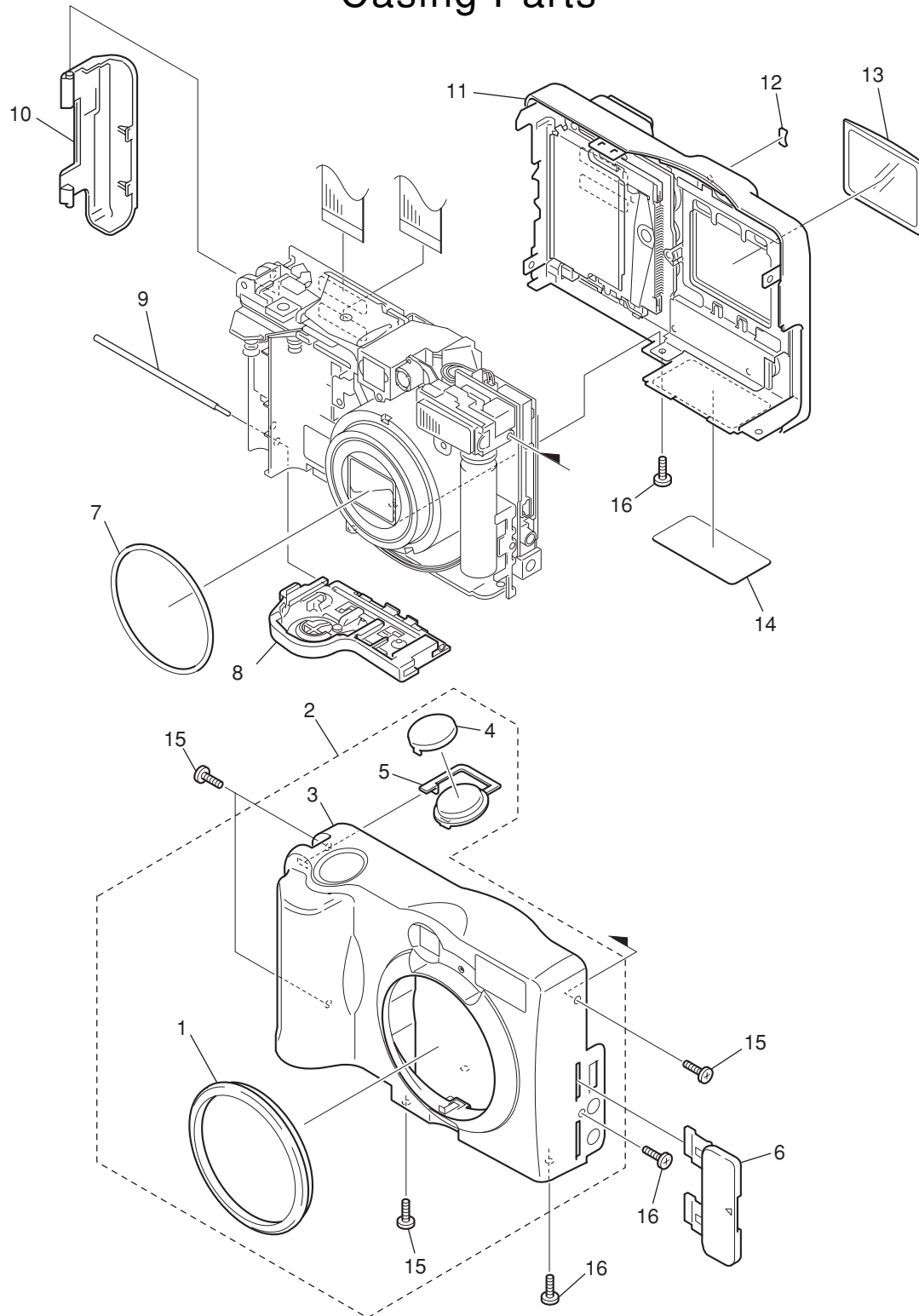
- A: 使用頻度 高
- B: 使用頻度 中
- C: 使用頻度 低
- D: 安全規格部品
- E: 消耗部品
- F: 標準ネジ、ワッシャー
- S: 供給制限品

Category of CLASS

- A: Frequency of use: High
- B: Frequency of use: Middle
- C: Frequency of use: Low
- D: Safety-related critical parts
- E: Consumable parts
- F: Standard screws and washers
- S: Supply of the parts is limited

Pg1

Casing Parts

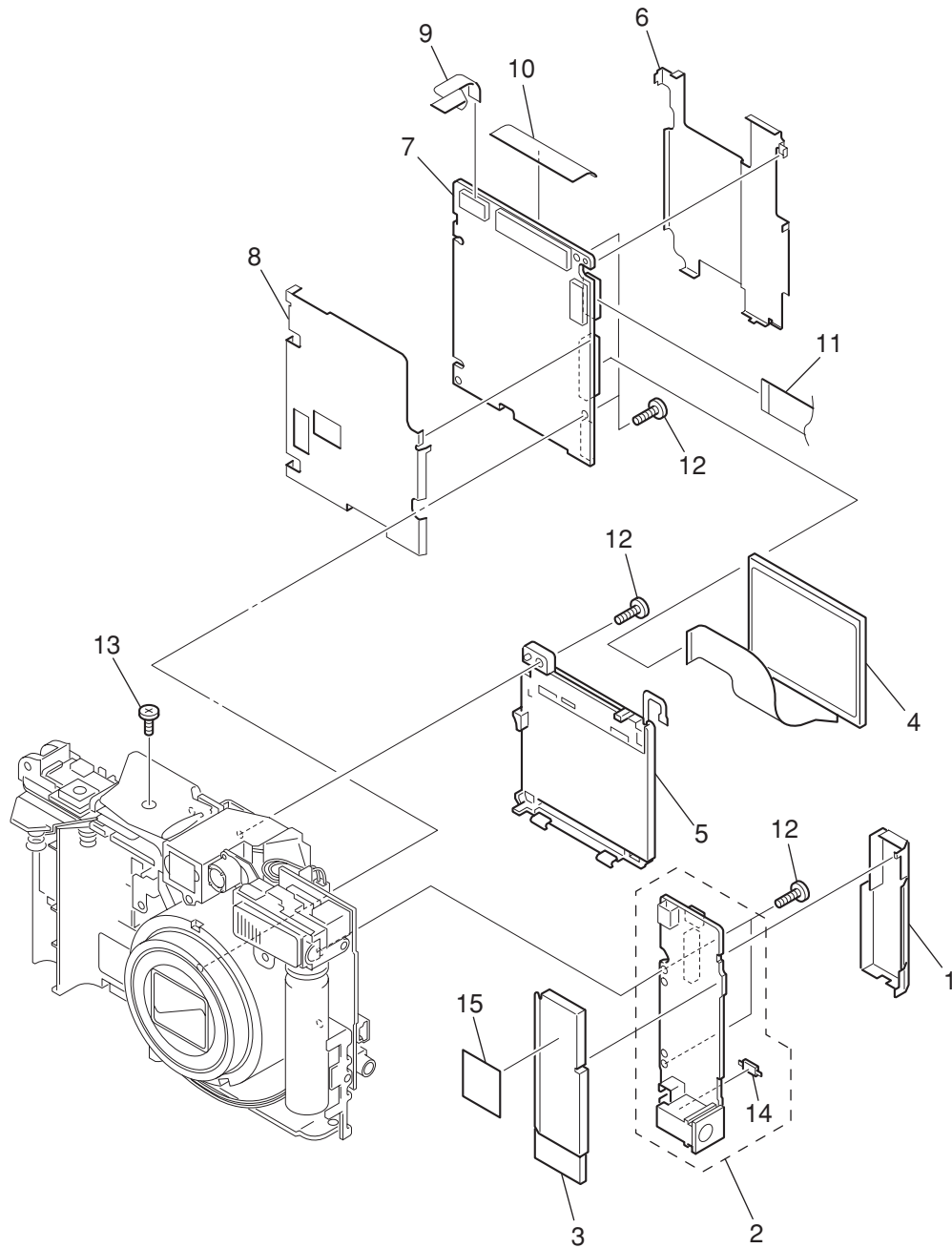


PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CY1-6154-000	B	1	RING, SCREW	A40/A30
2	CM1-1387-000	B	1	FRONT COVER UNIT	A30
3	CM1-1373-000	B	1	FRONT COVER UNIT	A40
4	CD1-3790-000	B	1	CAP, RELEASE	A40
5	CD1-3413-000	B	1	BASE, RELEASE	A40
6	CD1-4260-000	B	1	COVER, CONNECTOR	A40/A30
7	CD1-3432-000	C	1	SHEET, LENS BARREL	A40/A30
8	CM1-1375-000	B	1	BATTERY COVER UNIT	A40
	CM1-1388-000	B	1	BATTERY COVER UNIT	A30
9	CD1-3486-000	C	1	BAR, BATTERY COVER	A40/A30
10	CD1-4261-000	B	1	COVER, CF	A40/A30
11	CM1-1374-000	B	1	REAR COVER UNIT	A40/A30
12	CD1-4274-000	B	1	COVER, HOLE	A40/A30
13	CD1-4265-000	B	1	WINDOW, LCD	A40/A30
14	CY1-6136-000	B	1	PLATE, BODY NUMBER (J)	A40 (FOR JAPAN)
	CY1-6137-000	B	1	PLATE, BODY NUMBER (N)	A40 (FOR USA/CANADA)
	CY1-6138-000	B	1	PLATE, BODY NUMBER (E)	A40 (FOR EUROPE)
	CY1-6139-000	B	1	PLATE, BODY NUMBER (O)	A40 (FOR ASIA/AUSTRARIA)
	CY1-6140-000	B	1	PLATE, BODY NUMBER (J) (MALAYSIA)	A40 (FOR JAPAN)
	CY1-6141-000	B	1	PLATE, BODY NUMBER (N) (MALAYSIA)	A40 (FOR USA/CANADA)
	CY1-6142-000	B	1	PLATE, BODY NUMBER (E) (MALAYSIA)	A40 (FOR EUROPE)
	CY1-6143-000	B	1	PLATE, BODY NUMBER (O) (MALAYSIA)	A40 (FOR ASIA/AUSTRARIA)
	CY1-6144-000	B	1	PLATE, BODY NUMBER (J)	A30 (FOR JAPAN)
	CY1-6145-000	B	1	PLATE, BODY NUMBER (N)	A30 (FOR USA/CANADA)
	CY1-6146-000	B	1	PLATE, BODY NUMBER (E)	A30 (FOR EUROPE)
	CY1-6147-000	B	1	PLATE, BODY NUMBER (O)	A30 (FOR ASIA/AUSTRARIA)
15	CD1-4276-000	F	4	SCREW	A40
	CD1-4283-000	F	4	SCREW	A30
16	CD1-4277-000	F	3	SCREW	A40
	CD1-4284-000	F	2	SCREW	A30
	CD1-4277-000	F	1	SCREW	A30

Pg2

Internal Parts-1

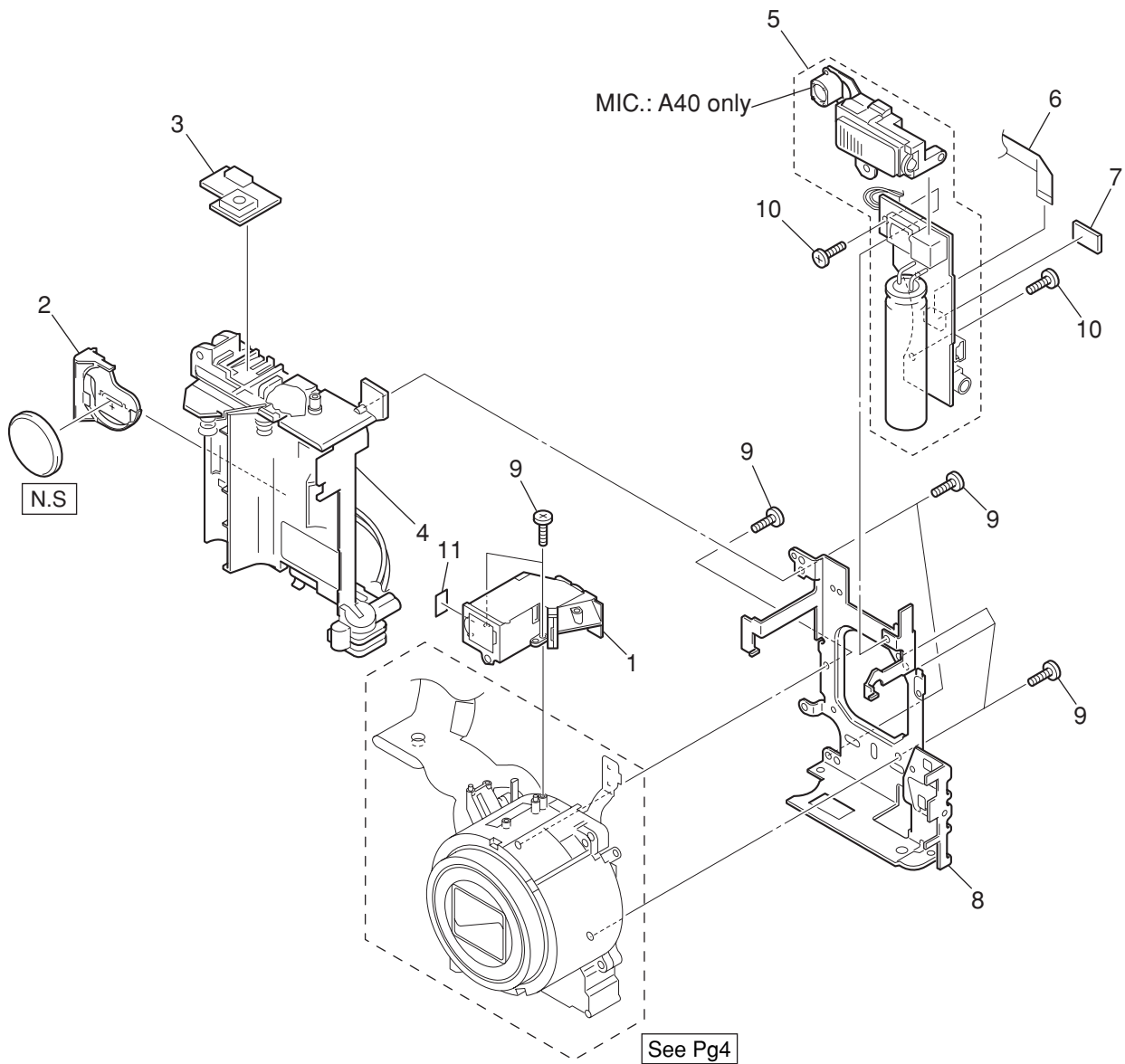


PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CD1-3510-000	C	1	CASE, DC/DC SHIELD 2	A40/A30
2	CM1-1377-000	C	1	DC/DC PCB ASS'Y	A40
	CM1-1390-000	C	1	DC/DC PCB ASS'Y	A30
3	CD1-3509-000	C	1	CASE, DC/DC SHIELD 1	A40/A30
4	WG2-5213-000	C	1	PANEL, LCD	A40/A30
	WG2-5213-001	C	1	PANEL, LCD (SELECTION)	A40/A30
5	CM1-1381-000	C	1	BACK LIGHT UNIT	A40/A30
6	CD1-3508-000	C	1	CASE, MAIN SHIELD 2	A40/A30
7	CM1-1376-000	C	1	MAIN PCB ASS'Y	A40
	CM1-1389-000	C	1	MAIN PCB ASS'Y	A30
8	CD1-3507-010	C	1	CASE, MAIN SHIELD 1	A40/A30
9	CK2-1204-000	C	1	FPC, M-R	A40/A30
10	CD1-4281-000	C	1	SHEET, EM 2	A40/A30
11	CK2-1202-000	C	1	FPC, M-D	A40/A30
12	CD1-4270-000	F	5	SCREW	A40/A30
13	CD1-3441-000	F	1	SCREW	A40/A30
14	WD1-5063-000	C	1	FUSE, MATSU.DENKI UNHH205	A40/A30
15	CD1-4282-000	C	1	SHEET, DC/DC	A40/A30

Pg3

Internal Parts-2

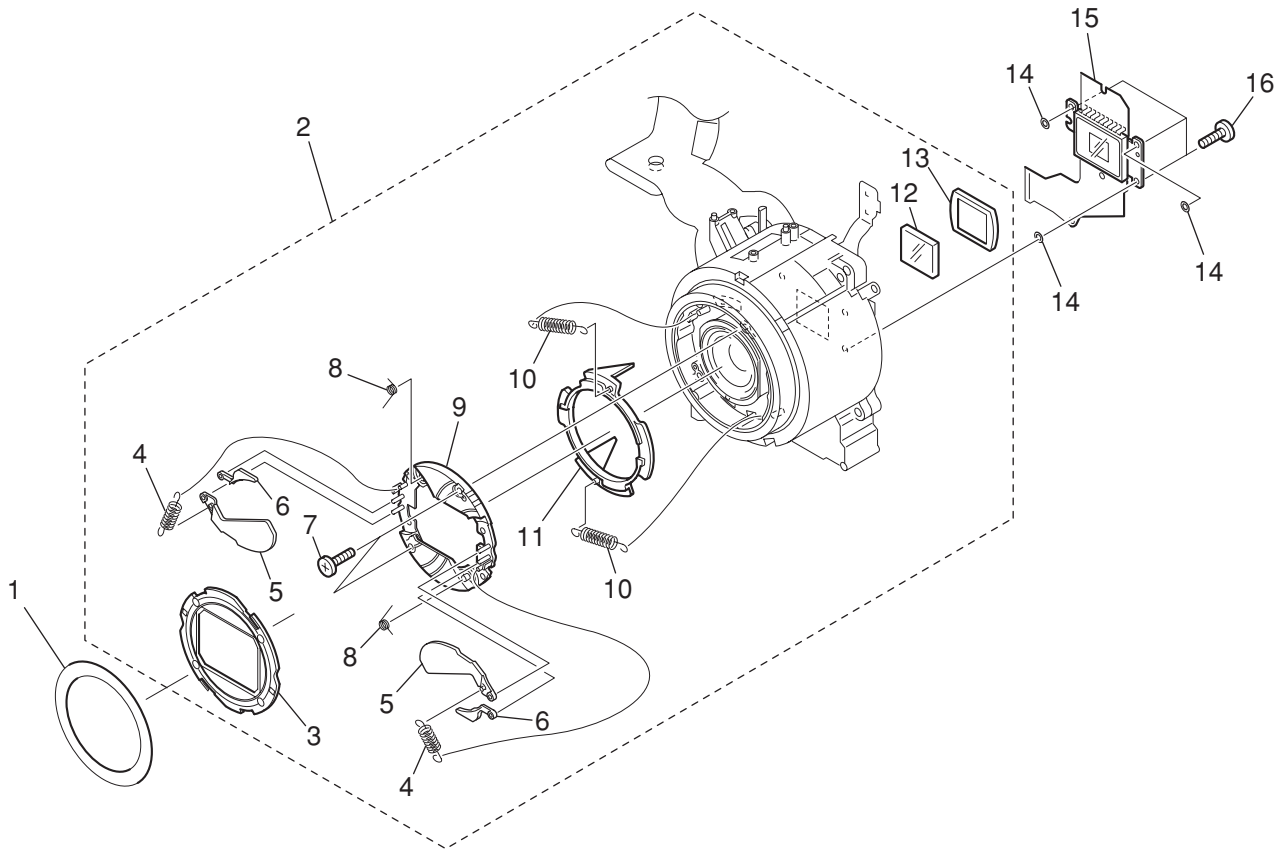


PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CM1-1180-000	B	1	FINDER UNIT	A40/A30
2	CD1-4262-000	B	1	HOLDER, LITHIUM BATTERY	A40/A30
3	CM1-1380-000	C	1	RLS PCB ASS'Y	A40/A30
4	CM1-1383-000	C	1	BATTERY BOX UNIT	A40/A30
5	CM1-1378-000	C	1	FLASH UNIT	A40
	CM1-1391-000	C	1	FLASH UNIT	A30
6	CK2-1203-000	C	1	FPC, M-S	A40/A30
7	CD1-3799-000	C	1	SHEET, EM 1	A40/A30
8	CD1-3473-010	C	1	FRAME, MAIN	A40/A30
9	XA4-9170-407	F	8	SCREW	A40/A30
10	CD1-4270-000	F	2	SCREW	A40/A30
11	CD1-4435-000	C	1	SHEET, CONDUCTION	A40/A30

Pg4

OPTICAL UNIT

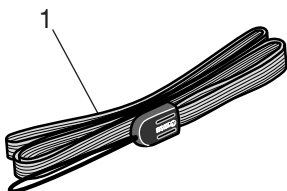


PARTS LIST

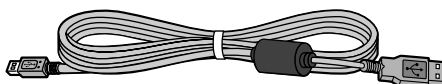
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CD1-4257-000	B	1	PLATE, LENS	A40/A30
2	CY1-6133-000	B	1	OPTICAL UNIT	A40
	CY1-6134-000	B	1	OPTICAL UNIT	A30
3	CD1-4256-000	C	1	CAP, LENS BARREL	A40/A30
4	CS8-5228-000	C	2	SPRING, BARRIER CLOSE	A40/A30
5	CD1-4254-000	B	2	PLATE, BARRIER 1	A40/A30
6	CD1-4255-000	B	2	PLATE, BARRIER 2	A40/A30
7	XA4-9140-359	F	2	SCREW	A40/A30
8	CS8-6159-000	C	2	SPRING, BARRIER PLATE 2	A40/A30
9	CD1-3448-000	C	1	BASE, BARRIER	A40/A30
10	CS8-5229-000	C	2	SPRING, BARRIER OPEN	A40/A30
11	CD1-3447-000	C	1	RING, BARRIER DRIVE	A40/A30
12	YN1-2011-000	C	1	FILTER, IR	A40
	YN1-2021-000	C	1	FILTER, IR	A30
13	FC2-9355-000	C	1	RUBBER, CCD	A40/A30
14	CD1-3443-000 020	C	3	WASHER, CCD	A40
	CD1-3443-000 040	C	3	WASHER, CCD	A30
15	CY1-6092-000	C	1	CCD UNIT	A40
	CY1-6135-000	C	1	CCD UNIT	A30
16	XA4-9140-307	F	3	SCREW	A40/A30

Accessories-1

Wrist Strap WS-200

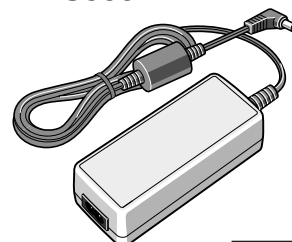


**USB Interface Cable
IFC-300PCU**



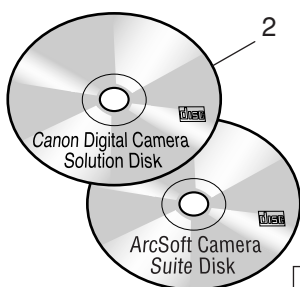
N.S

**Compact Power Adapter
CA-PS500**



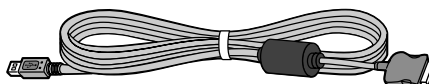
N.S

**Canon Digital Camera
Solution Disk,
ArcSoft Camera Suite Disk**



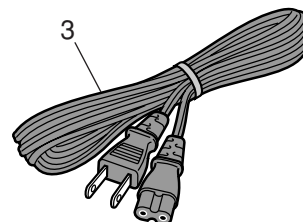
N.S

**Direct Interface Cable
DIF-100**

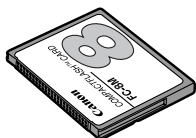


N.S

AC Cable

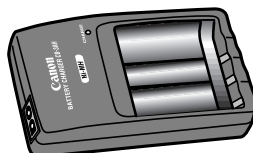


CF Card FC-8M



N.S

**Battery Charger
CB-3AH**



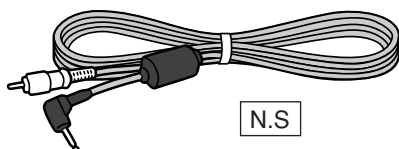
N.S

Soft Case SC-PS600



N.S

Video Cable VC-100



N.S

NiMH Battery NB4-100



N.S

N.S: N.S Stand for No Stock (Product available)

PARTS LIST

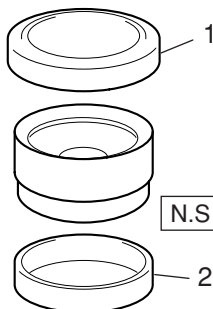
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	C84-1060-000	B	1	WRIST STRAP WS-200	
2	C84-1109-000	S	1	CD-ROM, SOLUTION VER.8.0 (J/E)	
	C84-1110-000	S	1	CD-ROM, SOLUTION VER.8.0 (E/F/S)	
3	WT3-5062-000	C	1	AC CABLE (J)	FOR JAPAN
	WT3-5063-000	C	1	AC CABLE (N)	FOR USA/CANADA
	WT3-5064-000	C	1	AC CABLE (E)	FOR EUROPE/ASIA
	WT3-5115-000	C	1	AC CABLE (B)	FOR ASIA
	WT3-5066-000	C	1	AC CABLE (A)	FOR AUSTRARIA

Accessories-2

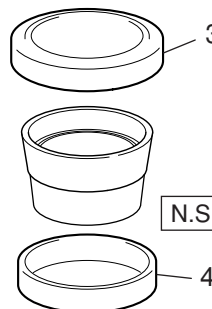
Conversion Lens Adapter LA-DC52 **Wide Converter WC-DC52** **Tele Converter TC-DC52** **Close-up Lens 250D (52mm)**



N.S



N.S

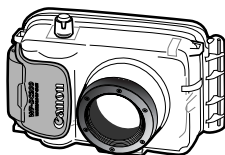


N.S



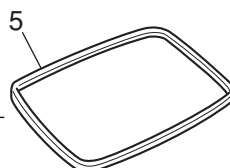
N.S

Waterproof Case WP-DC200s

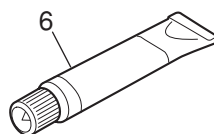


N.S

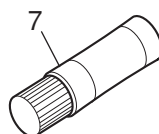
Waterproof Seal



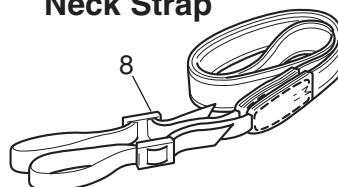
Silicone Grease



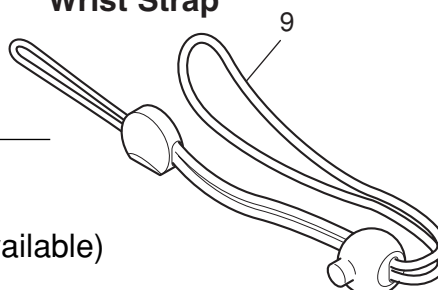
Anti-Condensation Solution



Neck Strap



Wrist Strap



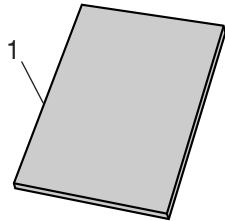
N.S: N.S Stand for No Stock (Product available)

PARTS LIST

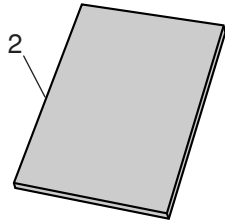
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CD1-3830-000	B	1	CAP, FRONT	
2	CD1-4042-000	B	1	CAP, REAR	
3	CD1-4315-000	B	1	CAP, FRONT	
4	CD1-4316-000	B	1	CAP, REAR	
5	CY1-6100-000	B	1	PACKING, RUBBER, WP-DC200	
6	DY9-3029-000	C	1	GREASE, PACKING	
7	DY9-3028-000	C	1	PROTECTOR, MOISTURE	
8	CY1-6099-000	B	1	NECK STRAP	
9	CY1-6174-000	B	1	WRIST STRAP	

Accessories-3

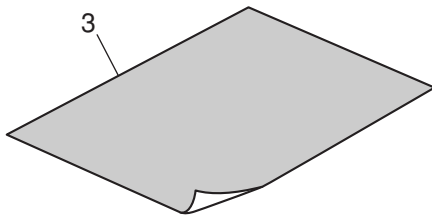
Camera User Guide



Software Starter Guide



System Map



PARTS LIST

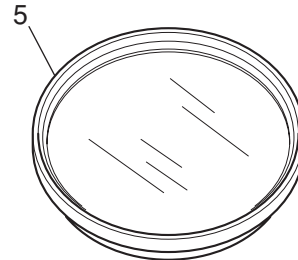
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CDI-J028-000	S	1	I.BOOK (J) PS A40/A30	FOR JAPAN
	CDI-E047-000	S	1	I.BOOK (E) PS A40/A30	FOR USA/CANADA/ASIA/ AUSTRARIA
	CDI-F037-000	S	1	I.BOOK (F) PS A40/A30	FOR CANADA
	CDI-S038-000	S	1	I.BOOK (S) PS A40/A30	FOR USA
2	CDI-J032-000	S	1	SOFTWARE GUIDE (J) FOR VER8.0	FOR JAPAN
	CDI-E041-000	S	1	SOFTWARE GUIDE (E) FOR VER8.0	FOR USA/CANADA/ASIA/ AUSTRARIA
	CDI-F031-000	S	1	SOFTWARE GUIDE (F) FOR VER8.0	FOR CANADA
	CDI-S028-000	S	1	SOFTWARE GUIDE (S) FOR VER8.0	FOR USA
3	CDI-J029-000	S	1	SYSTEM MAP (J) PS A40/A30	FOR JAPAN
	CDI-E048-000	S	1	SYSTEM MAP (E) PS A40/A30	FOR USA/CANADA/ASIA/ AUSTRARIA
	CDI-F038-000	S	1	SYSTEM MAP (F) PS A40/A30	FOR CANADA
	CDI-S039-000	S	1	SYSTEM MAP (S) PS A40/A30	FOR USA

Service Tools

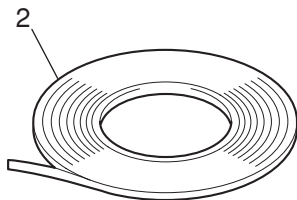
DIA BOND NO.1663G BLACK



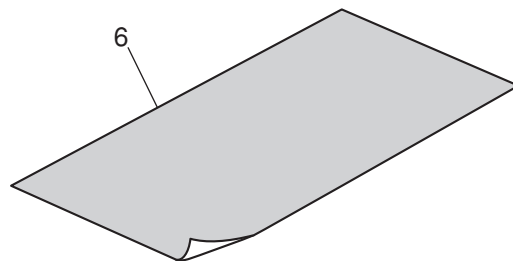
W-10 Filter



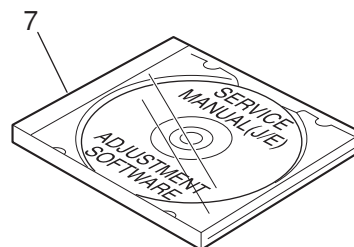
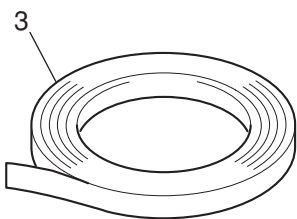
Adhesive Tape SONY T4000



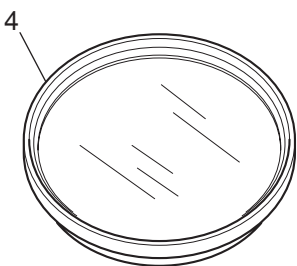
18% Gray Chart



Adhesive Tape 3M NO.56



C-12 Filter



PARTS LIST

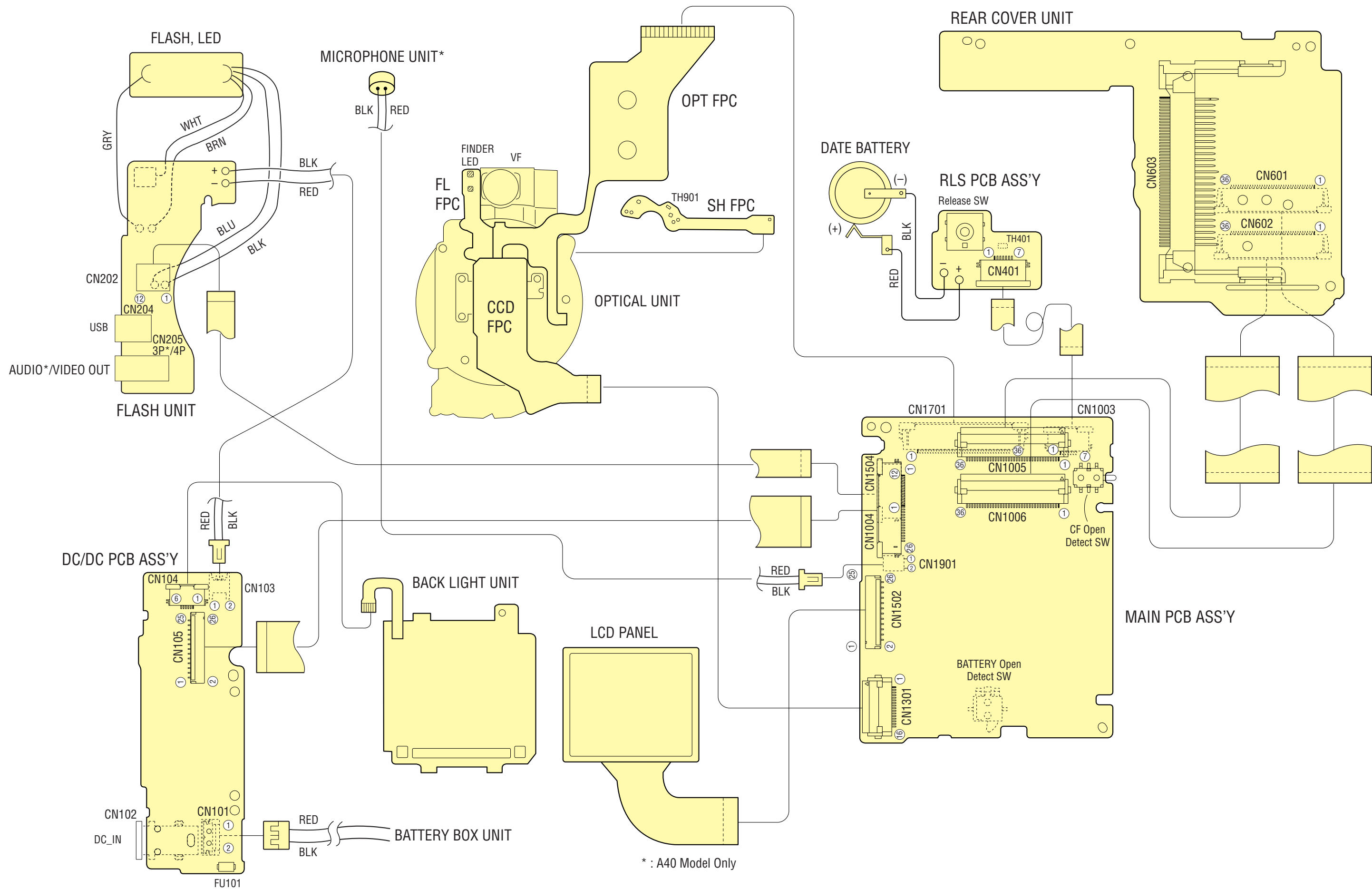
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CY9-8129-000	Y	1	BOND, DIA BOND NO.1663G BLACK	
2	CY4-6012-000	Y	1	ADHESIVE TAPE, SONY T4000	6mm X 50m Roll
3	CY4-6018-000	Y	1	ADHESIVE TAPE, 3M NO.56	15mm X 66m Roll
4	DY9-2029-000	Y	1	FILTER, C-12	
5	CY9-1543-000	Y	1	FILTER, W-10	
6	CY4-6016-000	Y	1	CHART, 18% GRAY	
7	CY8-4375-031	Y	1	CD-ROM, SERVICE MANUAL (J/E)	

CHAPTER 5. DIAGRAMS

CONTENTS

1. INTERCONNECTION DIAGRAM
2. BLOCK DIAGRAMS
 - 2-1. OVERALL
 - 2-2. MAIN PCB ASS'Y (1/3)
 - 2-3. MAIN PCB ASS'Y (2/3)
 - 2-4. MAIN PCB ASS'Y (3/3)
 - 2-5. DC/DC PCB ASS'Y
 - 2-6. Abbreviation in Block Diagrams
3. P.C.B. DIAGRAMS
 - 3-1. MAIN PCB ASS'Y
 - 3-2. DC/DC PCB ASS'Y
 - 3-3. FLASH UNIT
 - 3-4. REAR COVER UNIT
 - 3-5. RLS PCB ASS'Y

1. INTERCONNECTION DIAGRAM



CONNECTORS

MAIN PCB ASS'Y

CN1003	
1	M_GND
2	SCAN
3	SW1
4	SW2
5	BUT_BATT
6	VBATTEMP
7	C_GND
CN1004	
1	DC_DET
2	VDD2
3	VEE2
4	VCC2
5	C_GND
6	C_GND
7	C_GND
8	C_GND
9	VBATT
10	VCC1
11	VCC1
12	VCC1
13	VCC1A
14	VDD34
15	VCC34
16	E1PLAT
17	E2LAT
18	E3LAT
19	E4LAT
20	VCC1M
21	VCC1M
22	VCC1M
23	LED_BL
24	M_GND
25	M_GND
26	M_GND

CN1005	
1	M_GND
2	C_GND
3	SET
4	MINUS
5	PLUS
6	MENU
7	SCAN
8	POWER
9	VBATT_R
10	EXP/WB
11	DISP
12	DIAL0
13	SCON
14	DIAL1
15	DIAL2
16	C_GND
17	C_GND
18	/CD1
19	D03
20	D11
21	D04
22	D12
23	D05
24	D13
25	D06
26	D14
27	D07
28	D15
29	/CE1
30	/CE2
31	A10
32	/VS1
33	/OE
34	/IORD
35	A09
36	/IOWR

CN1006	
1	M_GND
2	C_GND
3	BUZZER
4	TELE
5	WIDE
6	C_GND
7	C_GND
8	/CD2
9	D10
10	/IOIS16
11	D09
12	D02
13	D08
14	D01
15	Not Connected
16	D00
17	Not Connected
18	A00
19	/REG
20	A01
21	Not Connected
22	A08
23	/WE
24	A07
25	IREQ
26	VCC1
27	VCC1
28	A06
29	Not Connected
30	A05
31	/VS2
32	A04
33	RESET
34	A03
35	/WAIT
36	A02
CN1301	
1	C_GND (LG)
2	VOUT (VO)
3	C_GND (PW)
4	VDD (OD)
5	SUB (SUB)
6	CSUB (OG)
7	VL (PT)
8	RG (R)
9	H2 (H2)
10	H1 (H1)
11	V1B (V1)
12	V1A (V5)
13	V2 (V2)
14	V3B (V3)
15	V3A (V6)
16	V4 (V4)

() : A30 Model

CN1502	
1	Not Connected
2	RGT
3	BLUE
4	RED
5	GREEN
6	PSIG
7	HCK1
8	HCK2
9	CEXT/REXT
10	Not Connected
11	REF
12	HST
13	WIDE
14	Not Connected
15	VSSG
16	VDDG
17	VSS
18	VDD
19	DWN
20	EN
21	VCK
22	VST
23	COM
24	Not Connected
CN1504	
1	UV_GND
2	VBUS
3	D-
4	D+
5	VIDEO
6	AUDIO
7	VC_DET
8	STSP
9	VCHGLVL
10	EFCHG
11	LEDS_AN
12	LED_SELF

CN1701	
1	ZMRST_EM
2	ZMRST_CO
3	ZMRST_AN
4	ZMRST_CA
5	LEDG_CA
6	LEDA_CA
7	LEDY_CA
8	LEDY_AN
9	LEDA_AN
10	LEDG_AN
11	AFRST_EM
12	AFRST_CO
13	AFRST_AN
14	AFRST_CA
15	ZMO-
16	ZMO-
17	ZMO+
18	ZMO+
19	AFA+
20	AFA-
21	AFB-
22	AFB+
23	ZMPO0_EM
24	ZMPO0_CA
25	ZMPO0_AN
26	ZMPO0_CO
27	ZMPO1_AN
28	ZMPO1_CA
29	ZMPO1_CO
30	ZMPO1_EM
31	IR+
32	IR-
33	SH+
34	SH-
35	THM2
36	THM1

RLS PCB ASS'Y

CN401	
1	M_GND
2	SCAN
3	SW1
4	SW2
5	BUT_BATT
6	VBATTEMP
7	C_GND

REAR COVER UNIT

CN601	
1	M_GND
2	C_GND
3	SET
4	MINUS
5	PLUS
6	MENU
7	SCAN
8	POWER
9	VBATT_R
10	EXP/WB
11	DISP
12	DIAL0
13	SCON
14	DIAL1
15	DIAL2
16	C_GND
17	C_GND
18	/CD1
19	D03
20	D11
21	D04
22	D12
23	D05
24	D13
25	D06
26	D14
27	D07
28	D15
29	/CE1
30	/CE2
31	A10
32	/VS1
33	/OE
34	/IORD
35	A09
36	/IOWR

CN602	
1	M_GND
2	C_GND
3	BUZZER
4	TELE
5	WIDE
6	C_GND
7	C_GND
8	/CD2
9	D10
10	/IOIS16
11	D09
12	D02
13	D08
14	D01
15	/STSDHG
16	D00
17	SPKR
18	A00
19	/REG
20	A01
21	INPACK
22	A08
23	/WE
24	A07
25	IREQ
26	VCC1
27	VCC1
28	A06
29	/CSEL
30	A05
31	/VS2
32	A04
33	RESET
34	A03
35	/WAIT
36	A02

CN603	
1	GND
2	D03
3	D04
4	D05
5	D06
6	D07
7	/CE1
8	A10
9	/OE
10	A09
11	A08
12	A07
13	VCC
14	A06
15	A05
16	A04
17	A03
18	A02
19	A01
20	A00
21	D00
22	D01
23	D02
24	/IOIS16
25	/CD2
26	/CD1
27	D11
28	D12
29	D13
30	D14
31	D15
32	/CE2
33	/VS1
34	/IORD
35	/IOWR
36	/WE
37	IREQ
38	VCC
39	/CSEL
40	/VS2
41	RESET
42	/WAIT
43	/INPACK
44	/REG
45	/SPKR
46	/STSDHG
47	D08
48	D09
49	D10
50	GND

FLASH UNIT

CN201	
1	VBATT
2	GND
CN202	
1	LED_SELF
2	LEDS_AN
3	EFCHG
4	VCHGLVL
5	STSP
6	AUDIO*
7	VC_DET
8	VIDEO
9	D+
10	D-
11	VBUS
12	UV_GND
CN204	
1	VBUS
2	D-
3	D+
4	Not Connected
5	UV_GND
CN205	
1	UV_GND
2	AUDIO
3	VIDEO
4	VC_DET

*A40 Model Only

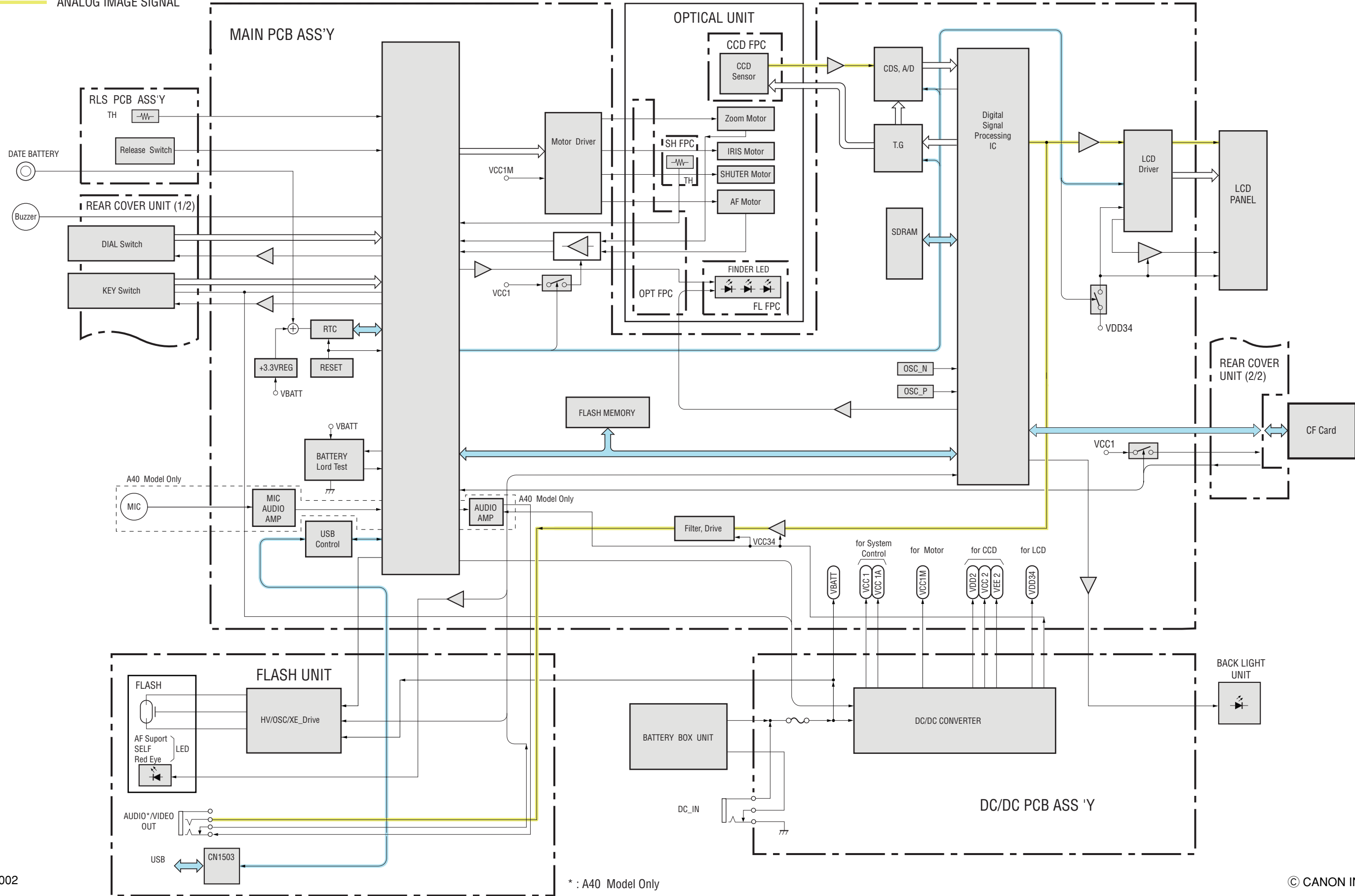
DC/DC PCB ASS'Y

CN101	
1	BATT+
2	BATT-
CN102	
1	VDC_IN
2	BATT_SEPA
3	GND
CN103	
1	VBATT
2	GND
CN104	
1	LED_BL
2	LED_BL
3	LED_BLA4
4	LED_BLA3
5	LED_BLA2
6	LED_BLA1
CN105	
1	Not Connected
2	VDD2
3	VEE2
4	VCC2
5	C_GND
6	C_GND
7	C_GND
8	C_GND
9	VBATT
10	VCC1
11	VCC1
12	VCC1
13	VCC1A
14	VDD34
15	VCC34
16	E1PLAT
17	E2LAT
18	E3LAT
19	E4LAT
20	VCC1M
21	VCC1M
22	VCC1M
23	LED_BL
24	M_GND
25	M_GND
26	M_GND

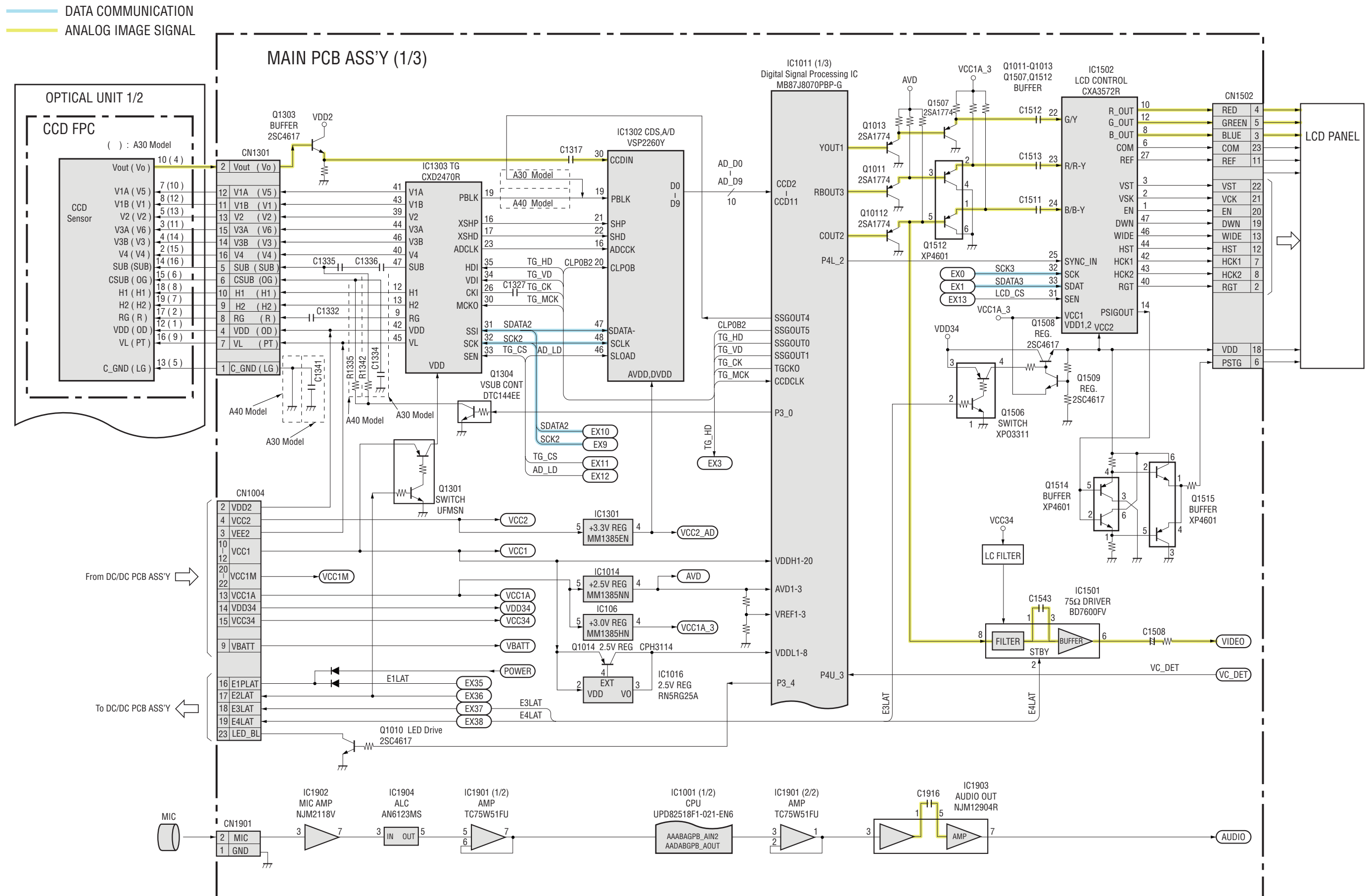
2. BLOCK DIAGRAMS

2.1 OVERALL

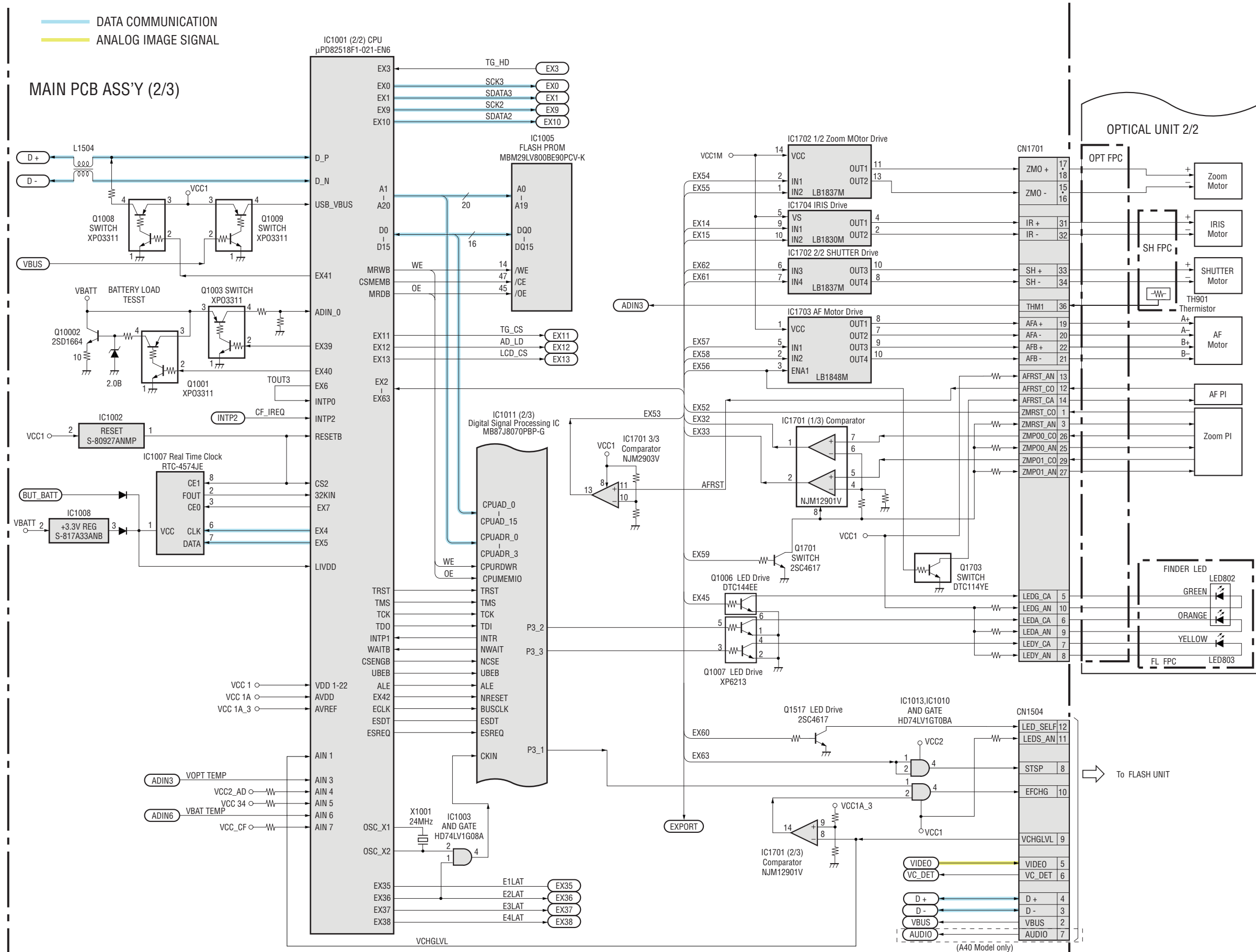
DATA COMMUNICATION
ANALOG IMAGE SIGNAL



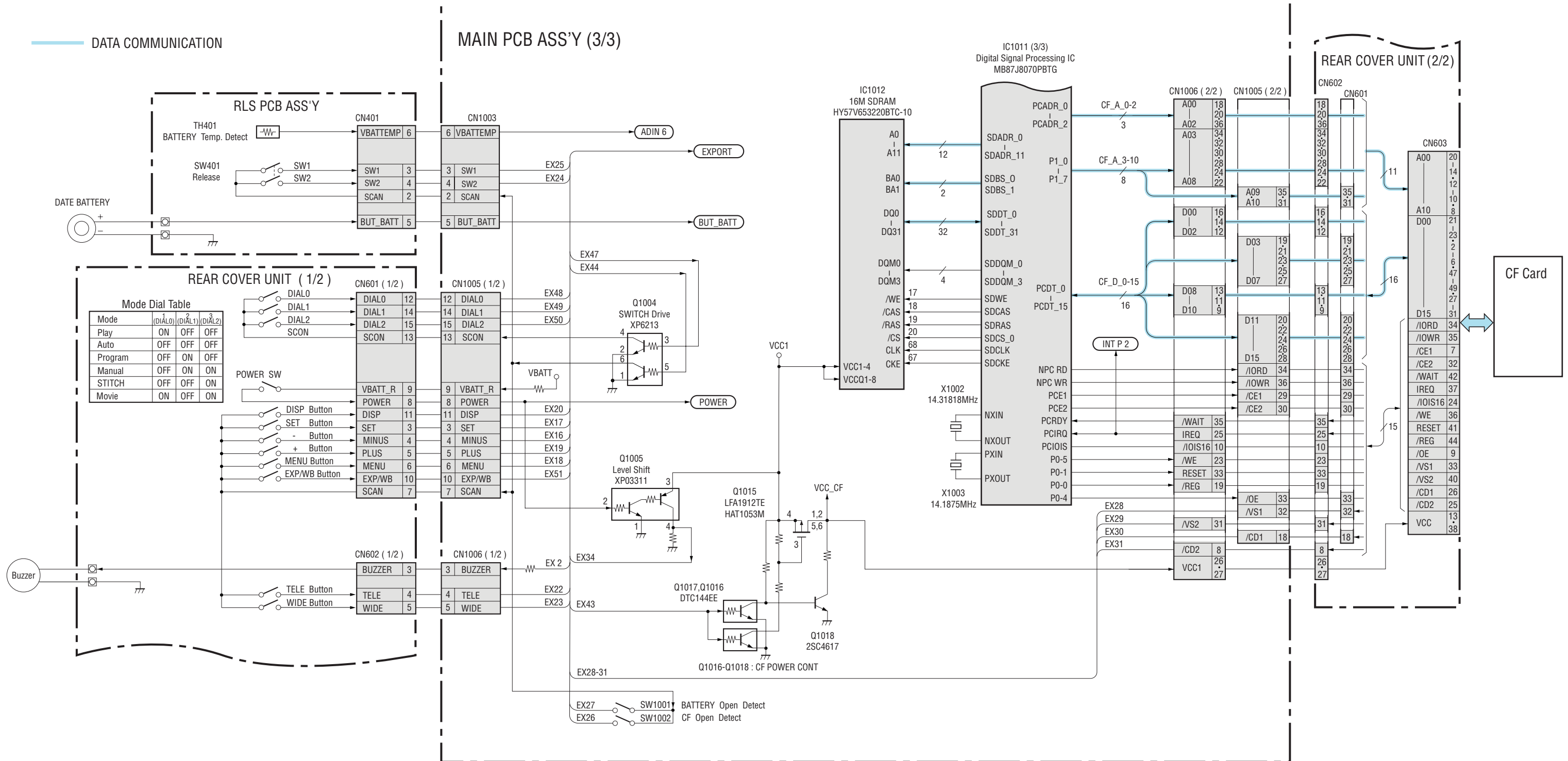
2.2 MAIN PCB ASS'Y (1/3)



2.3 MAIN PCB ASS'Y (2/3)



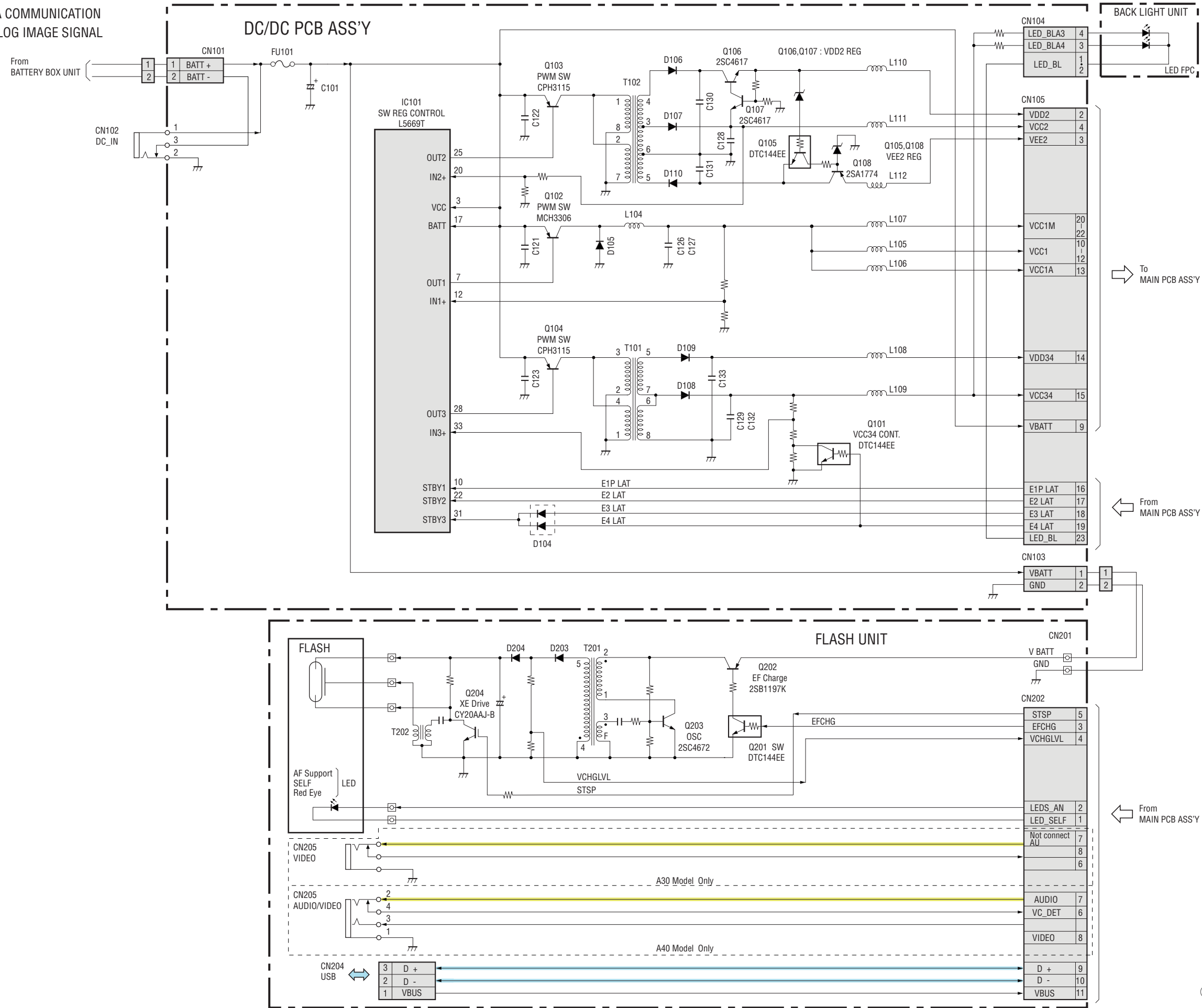
2.4 MAIN PCB ASS'Y (3/3)



2.5 DC/DC PCB ASS'Y

DATA COMMUNICATION

ANALOG IMAGE SIGNAL



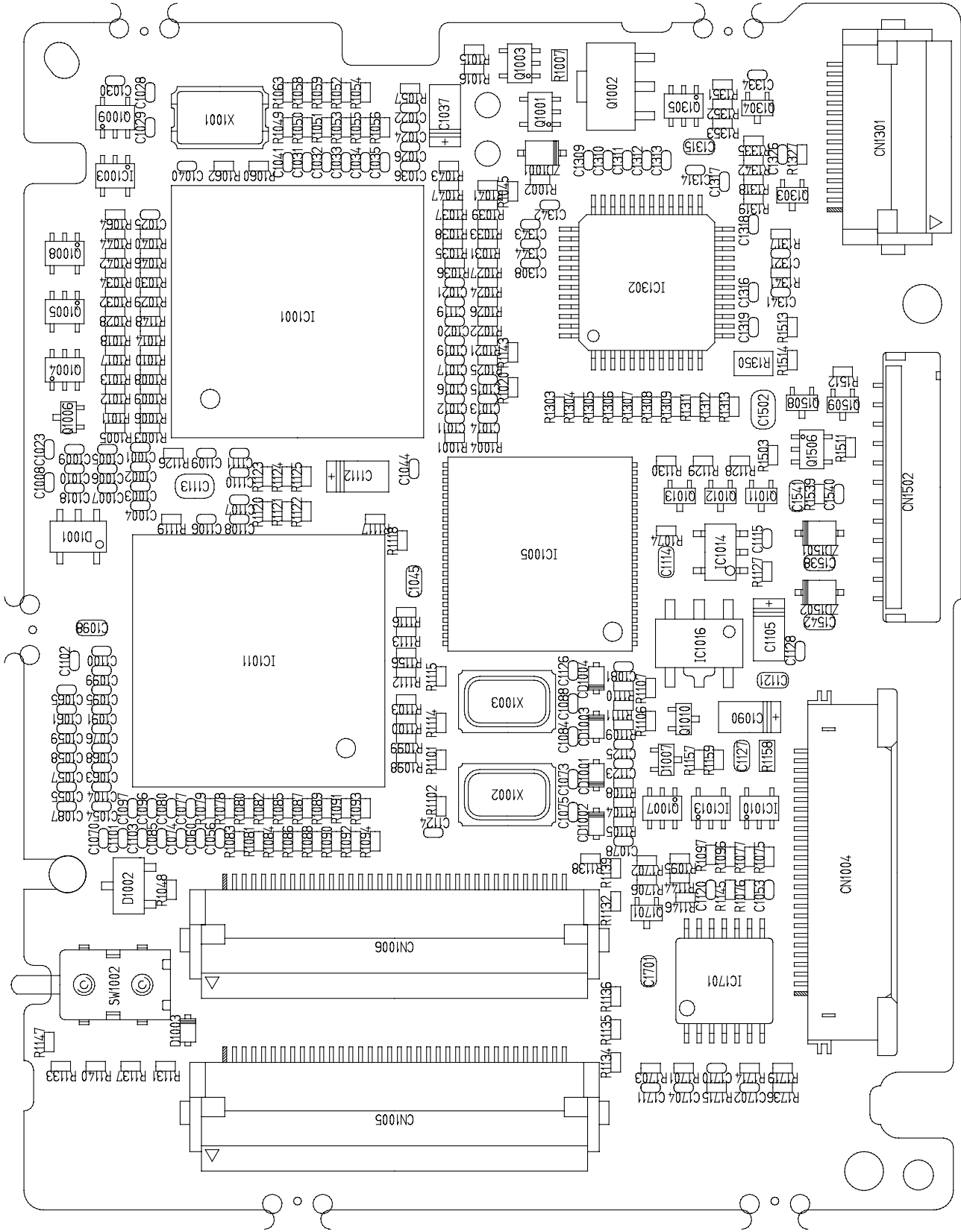
2.6 Abbreviation in Block Diagrams

Abbreviation	Nominal name	Description
ADC	Analog-to-Digital (A/D) Converter	
AE	Automatic Exposure control	
AF	Automatic Focussing control	
AND	Logic AND circuit	
R-Y/B-Y		Color difference signals of TV system
BPF	Band-Pass Filter	
BUFFER	Buffer circuit	
C	Chrominance signal	Color component signal of TV system
CCD	Charge-Coupled Device	CCD imager
CDS	Correlated Double Sampling system	
COMP.VIDEO	Composite video signal	
COMPARATOR	Voltage comparator	
CPU	Central Processing Unit	
DAC	Digital-to-Analog (D/A) Converter	
DRAM	Dynamic Random Access Memory	Memory with which read and write are freely possible.
DSP	Digital Signal Processing	Typically DSP device
EEPROM	Electrically Erasable PROM	PROM that is electrically erasable.
EVF	Electronic View Finder	
FET	Field Effect Transistor	
FLASH MEMORY		Non-volatile memory with which write and read are freely possible.
HPF	High-Pass Filter	
I/F	InterFace	The circuit that interconnects 2 devices or circuits.
IGBT	Insulated Gate Bipolar Transistor	Conductivity-modulation type FET transistor
INV.	Logic Inverter circuit	
IR	InfraRed ray	
IRIS	Iris	
LCD	Liquid Crystal Device	Typically LCD display
LED	Light Emitting Diode	Typically LED display
LPF	Low-Pass Filter	
NTSC	National Television System Committees	NTSC color TV system developed in USA
OP Amp	OPerational Amplifier	
OR	Logic OR circuit	
OSC	OSCillator	
PAL	Phase Alternating by Line	PAL color TV system developed in Germany
PLL	Phase Locked Loop	
PROM	Programmable Read Only Memory	Non-volatile memory in which program can be written.
PWM	Pulse Width Modulation	
REG.	REGulated power supply	
RTC	Real Time Clock	Reference clock oscillator
SDRAM	Synchronous Dynamic RAM	DRAM whose bus interface is synchronous.
SECAM	SEquential Colour À Mémoire	SECAM color TV system developed in France
SW REG	SWitching REGulator	Switching type regulated power supply device
TG	Timing Generator	
USB	Universal Serial Bus	USB type serial data communication system
VCO	Voltage Controlled Oscillator	
VCXO	Voltage Controlled X'tal Oscillator	
XE	Xenon Tube	
Y	Y-signal	Luminance component signal of TV system

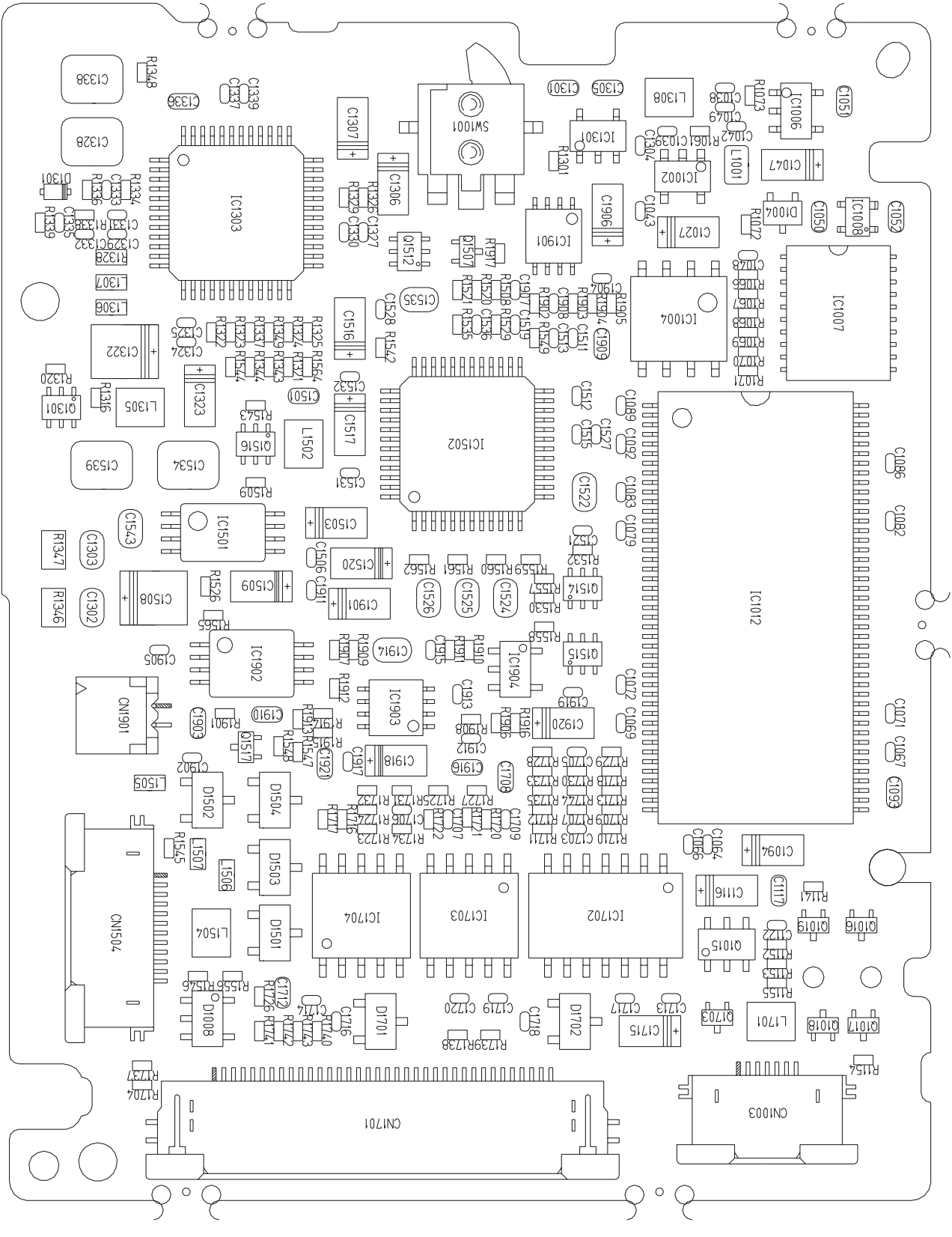
3. P.C.B. DIAGRAMS

3.1 MAIN PCB ASS'Y

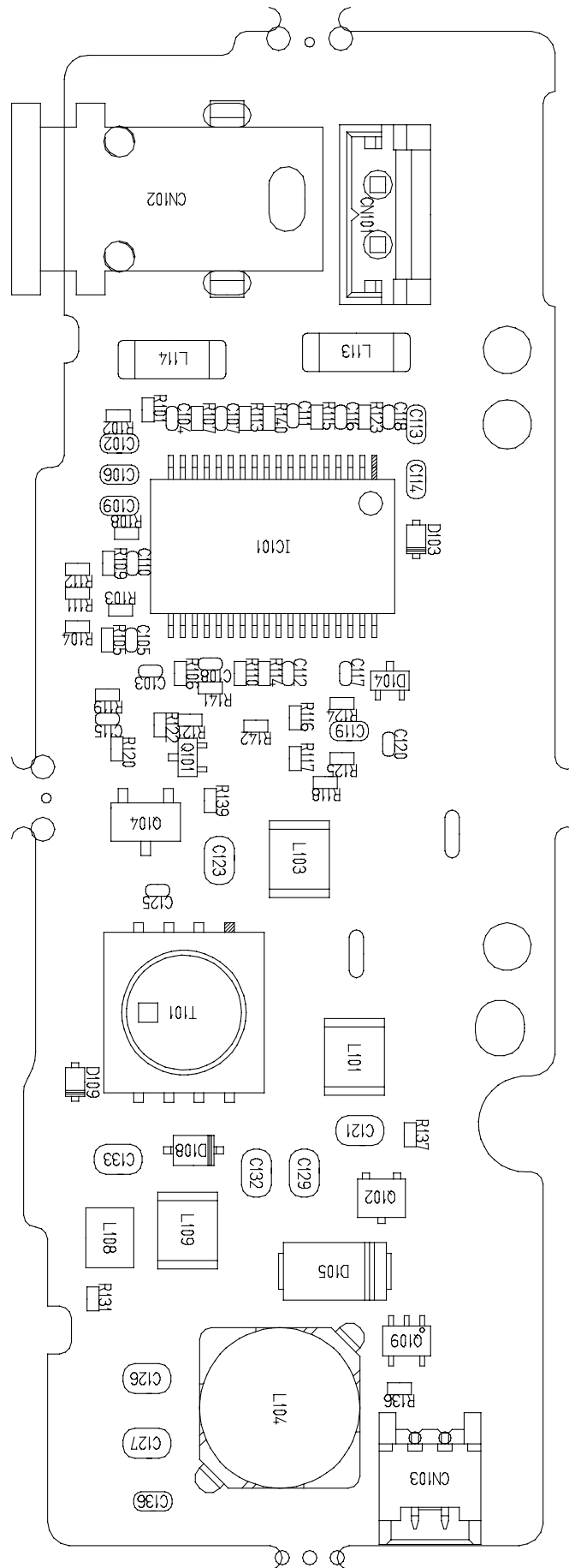
MAIN PCB ASS'Y (SOLDERING SIDE)



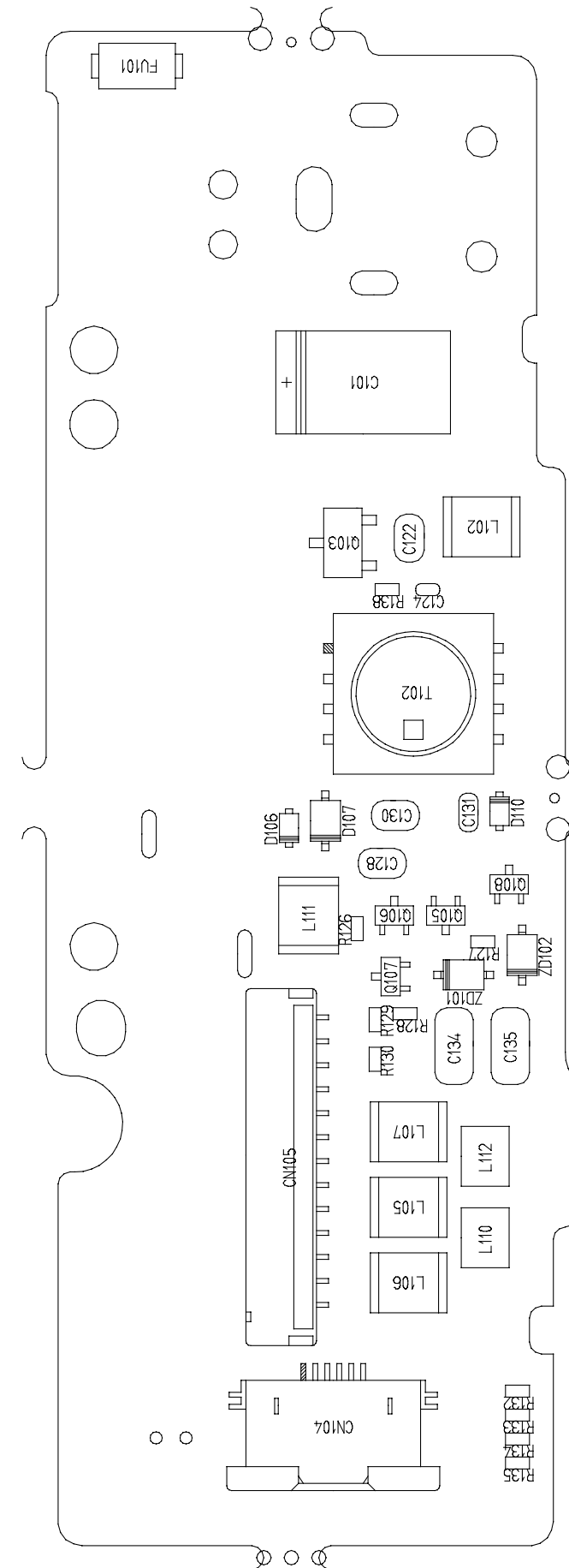
MAIN PCB ASS'Y (COMPONENT SIDE)



DC PCB ASS'Y (SOLDERING SIDE)

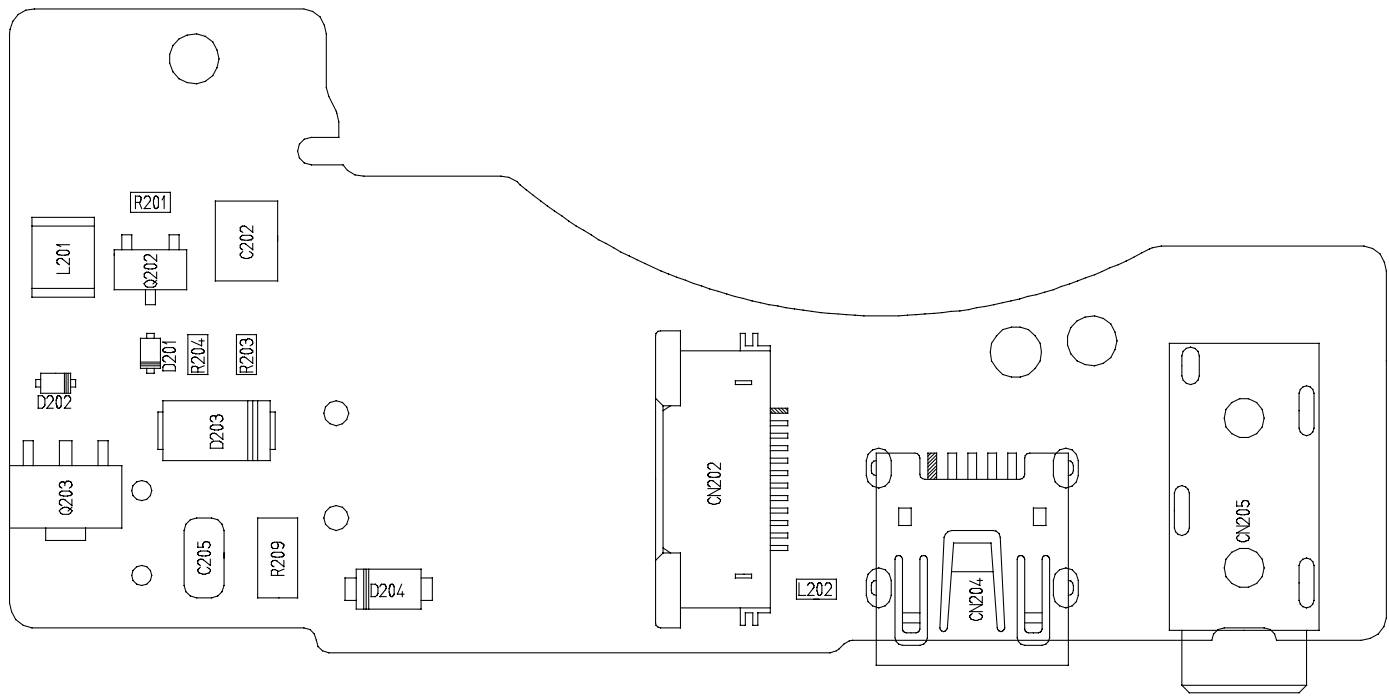


DC PCB ASS'Y (COMPONENT SIDE)

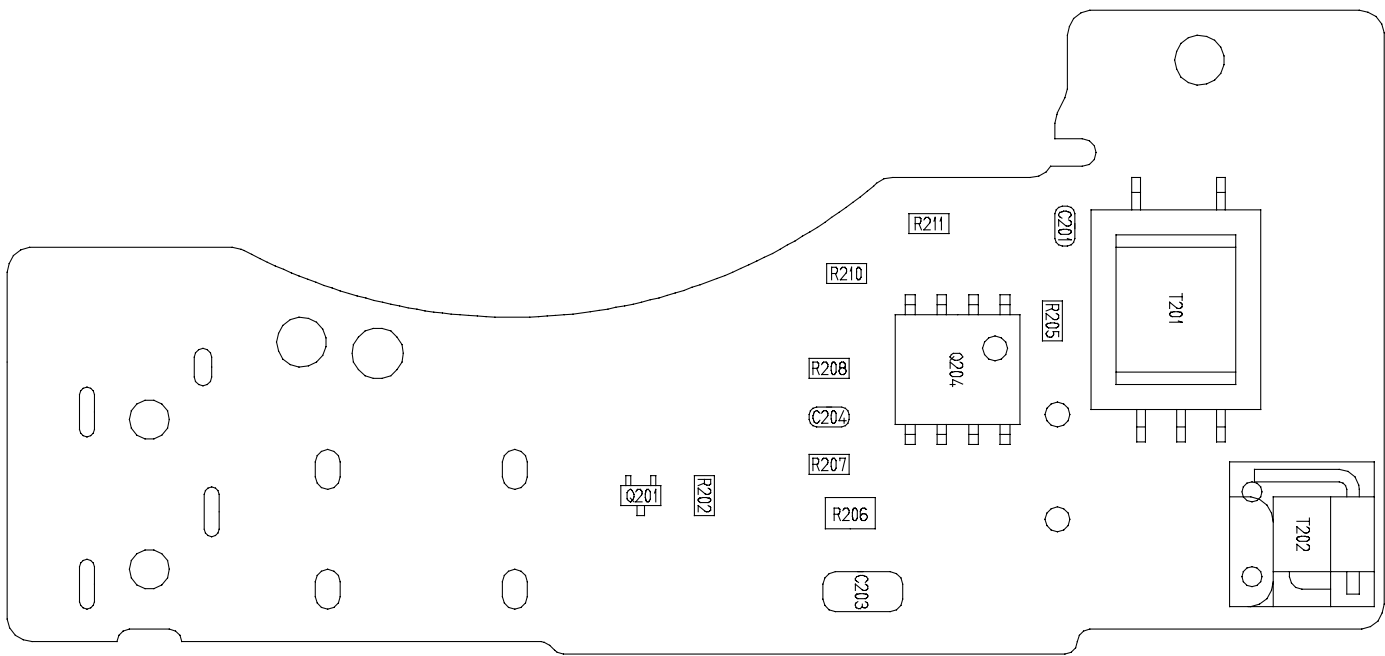


3.3 FLASH UNIT

FLASH PCB ASS'Y (SOLDERING SIDE)

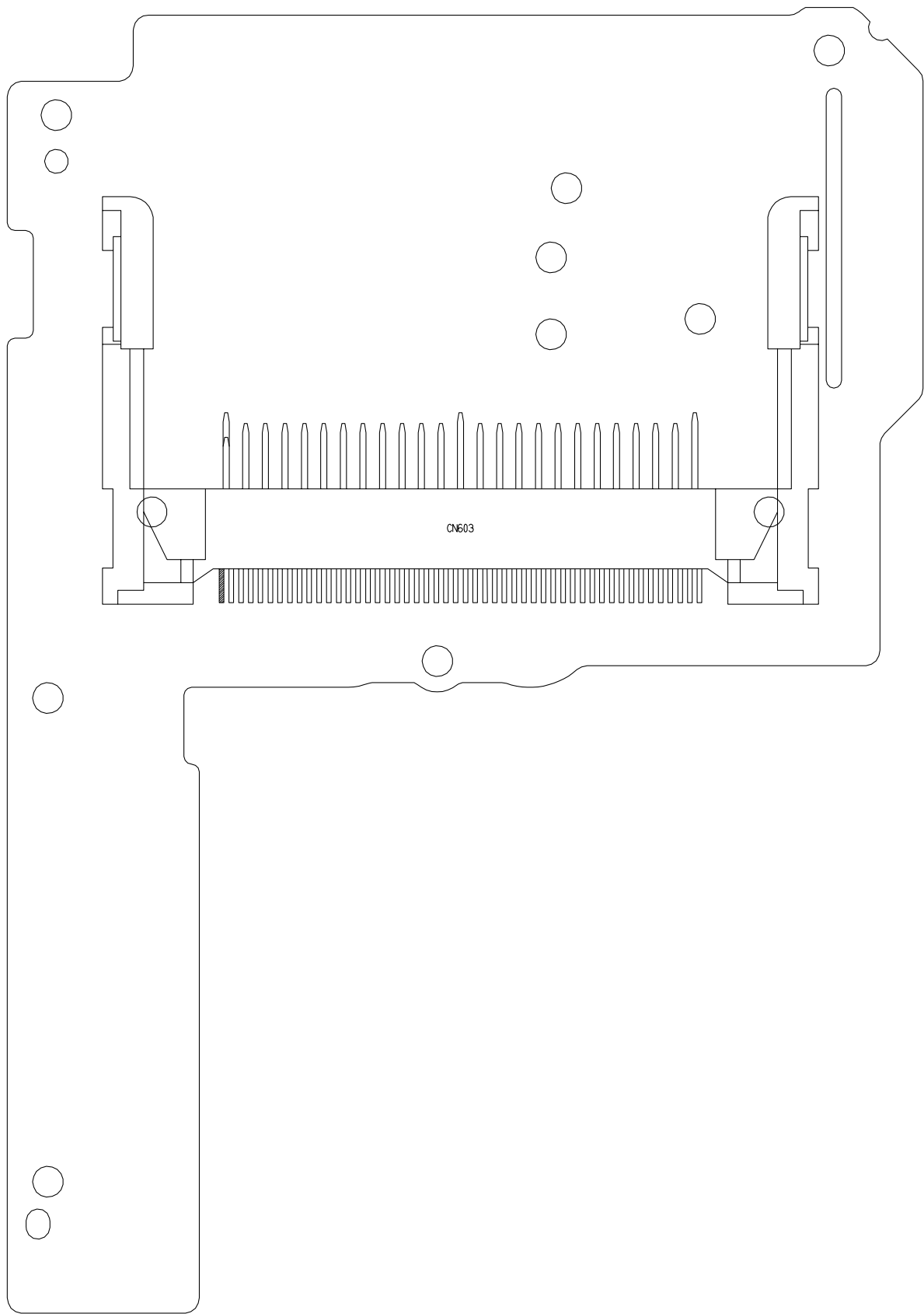


FLASH PCB ASS'Y (COMPONENT SIDE)

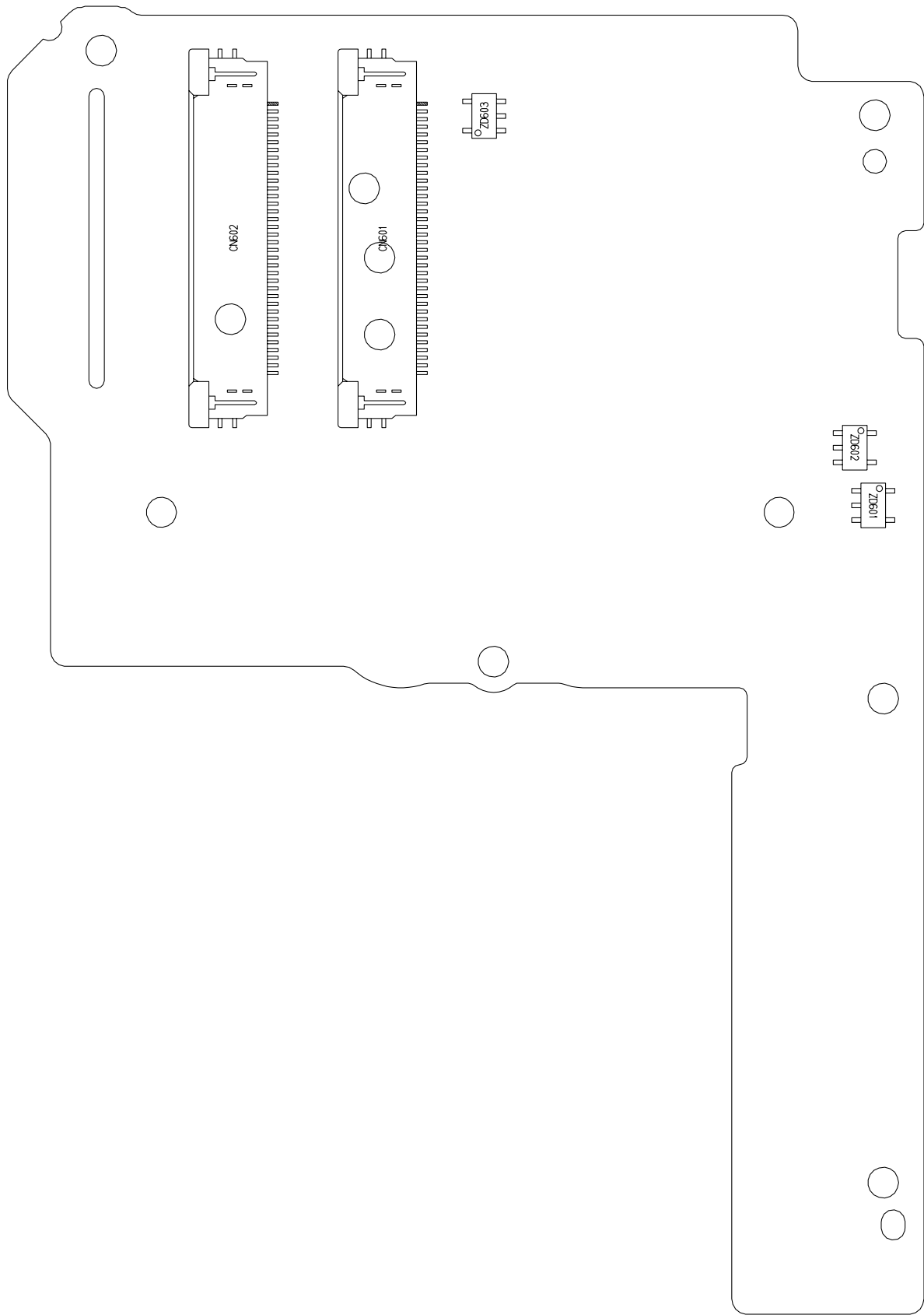


3.4 REAR COVER UNIT

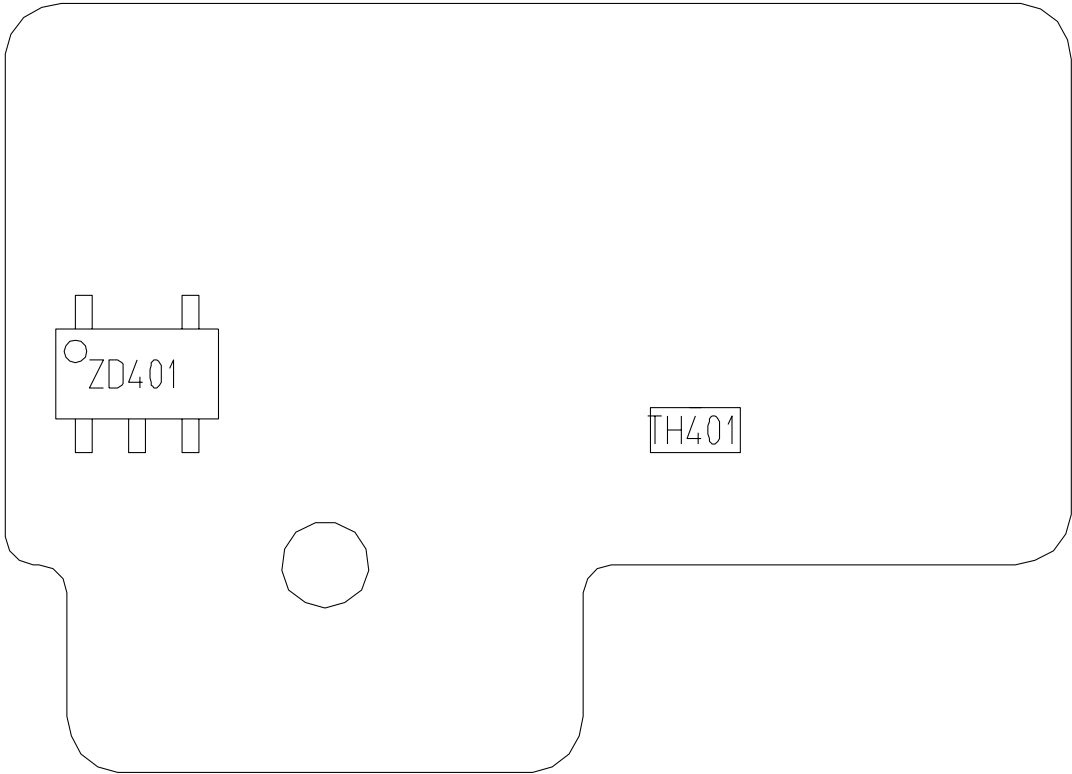
REAR COVER UNIT (SOLDERING SIDE)



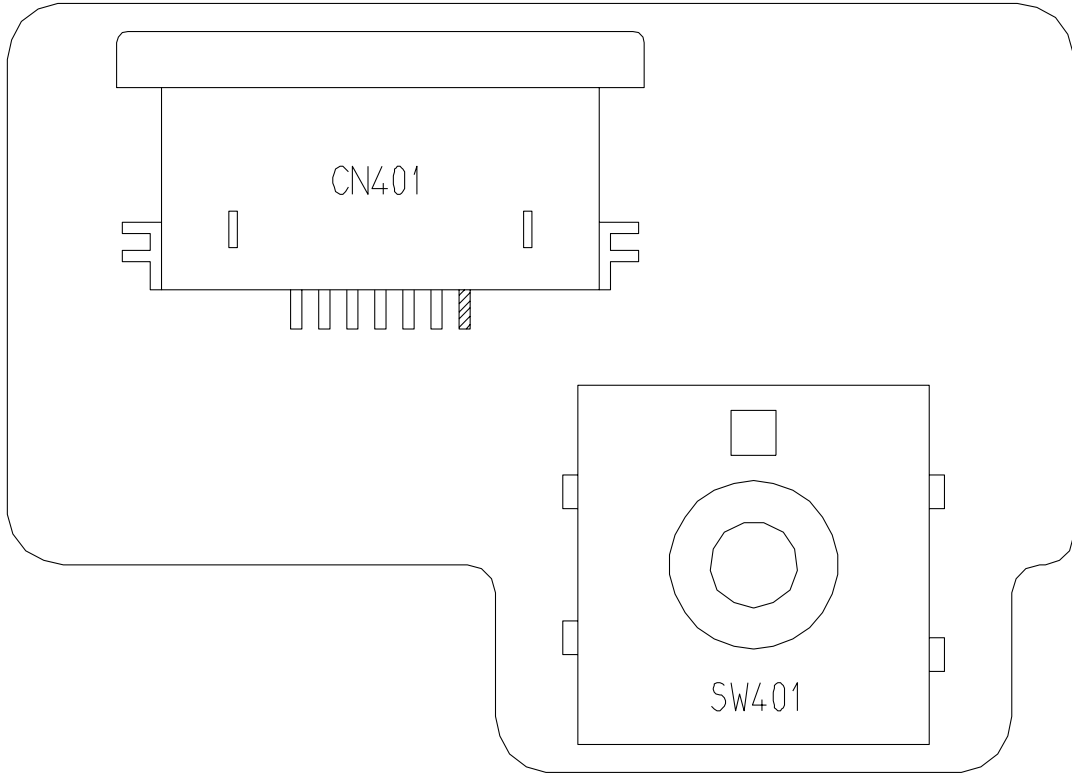
REAR COVER UNIT (COMPONENT SIDE)



RLS PCB ASS'Y (SOLDERING SIDE)




RLS PCB ASS'Y (COMPONENT SIDE)



How to print out the Zoom/AF Chart

The large materials such as “Zoom/AF Chart” that occupy a page of large size, can be divided into several smaller pages using “Graphic Select Tool” for printing the entire page.

< Procedures >

1. Select “ Text Select Tool” from the Command Bar and keep pressing it.

Then, select the “ Graphic Select Tool”.



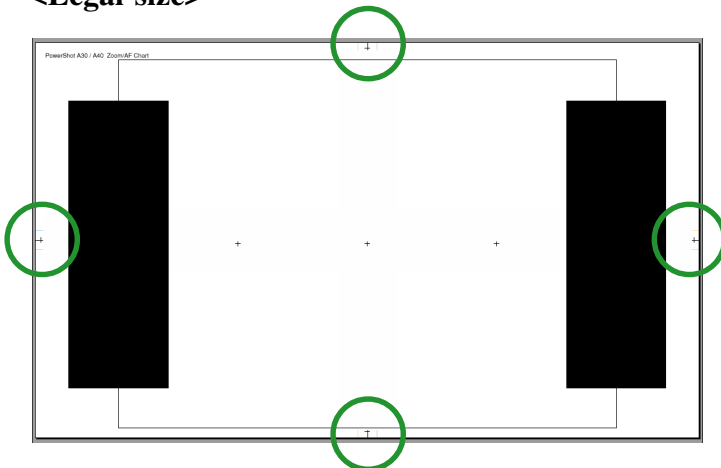
2. Select the desired portion to print. (Drag the cursor on desired area.)
3. Click “Print” of the Menu Bar. Check “Selected Thumbnails/Graphic”, then start printing.
When you check “Fit to Page”, the data can be reduced or enlarged of its printing size so that the printing size fits the size of paper.*
4. To cancel the printing area, click an arbitrary position on the display.

* Remarks

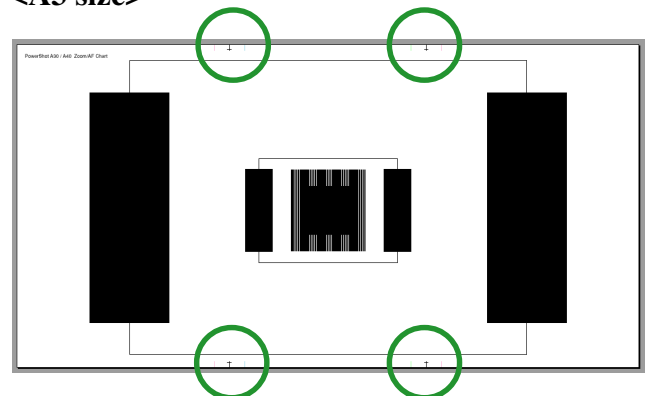
The “Zoom/AF Chart” of the Service Manual that is saved in this CD-ROM, has the colored markings in colors so that the entire page can be divided into print papers (legal-size x 4 pages, A3 size x 3 pages). Operate as follows.

Select “Graphic Select Tool”. Select the 2 markings having the same color to select the first printing area. Press “Print” to print the first printing area. Perform the above steps 2 and 3. Select another 2 markings having the second color to select the second printing area. Press “Print” to print the second printing area. Repeat this procedure until the all pages are printed.

<Legal-size>

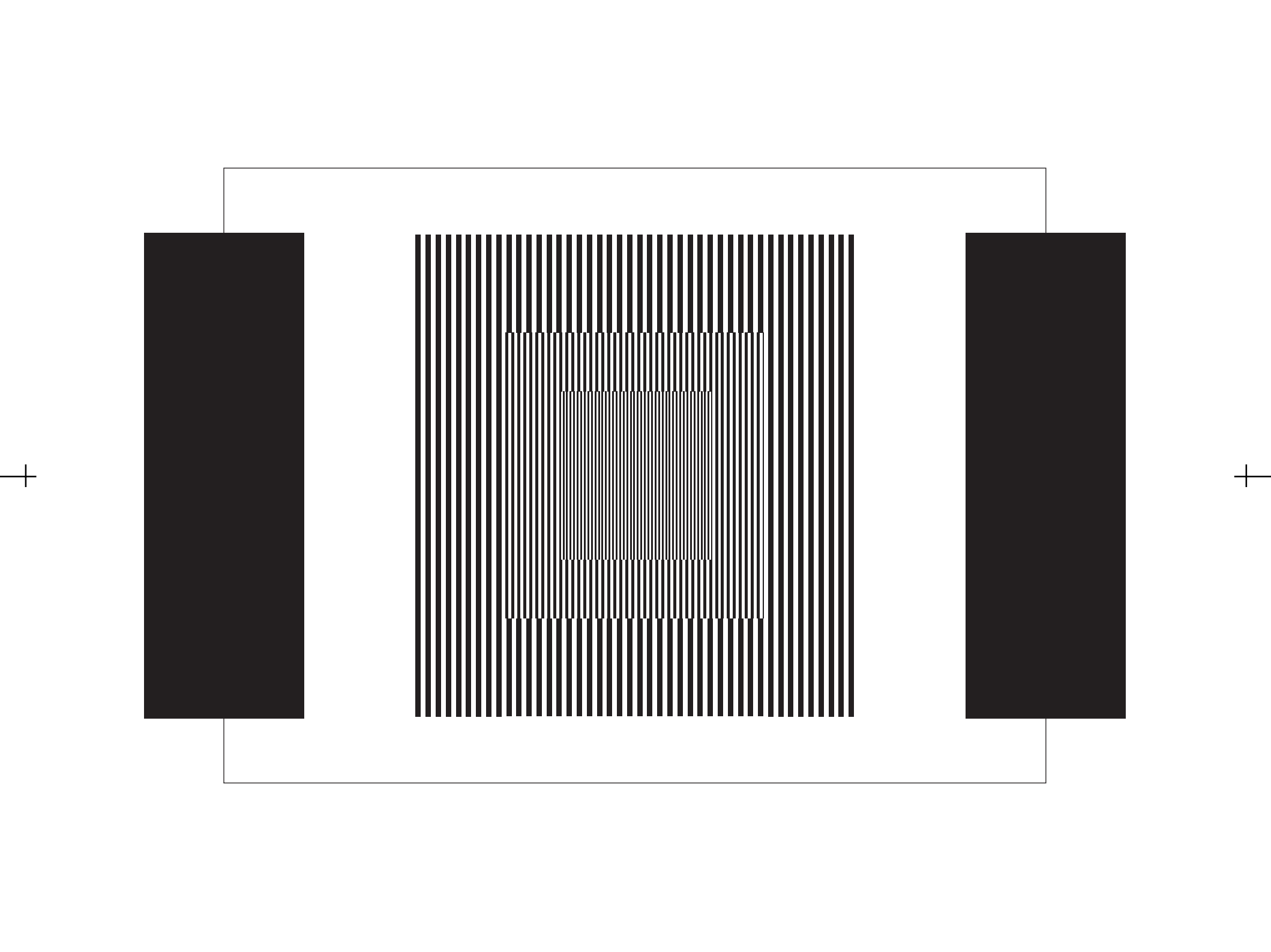


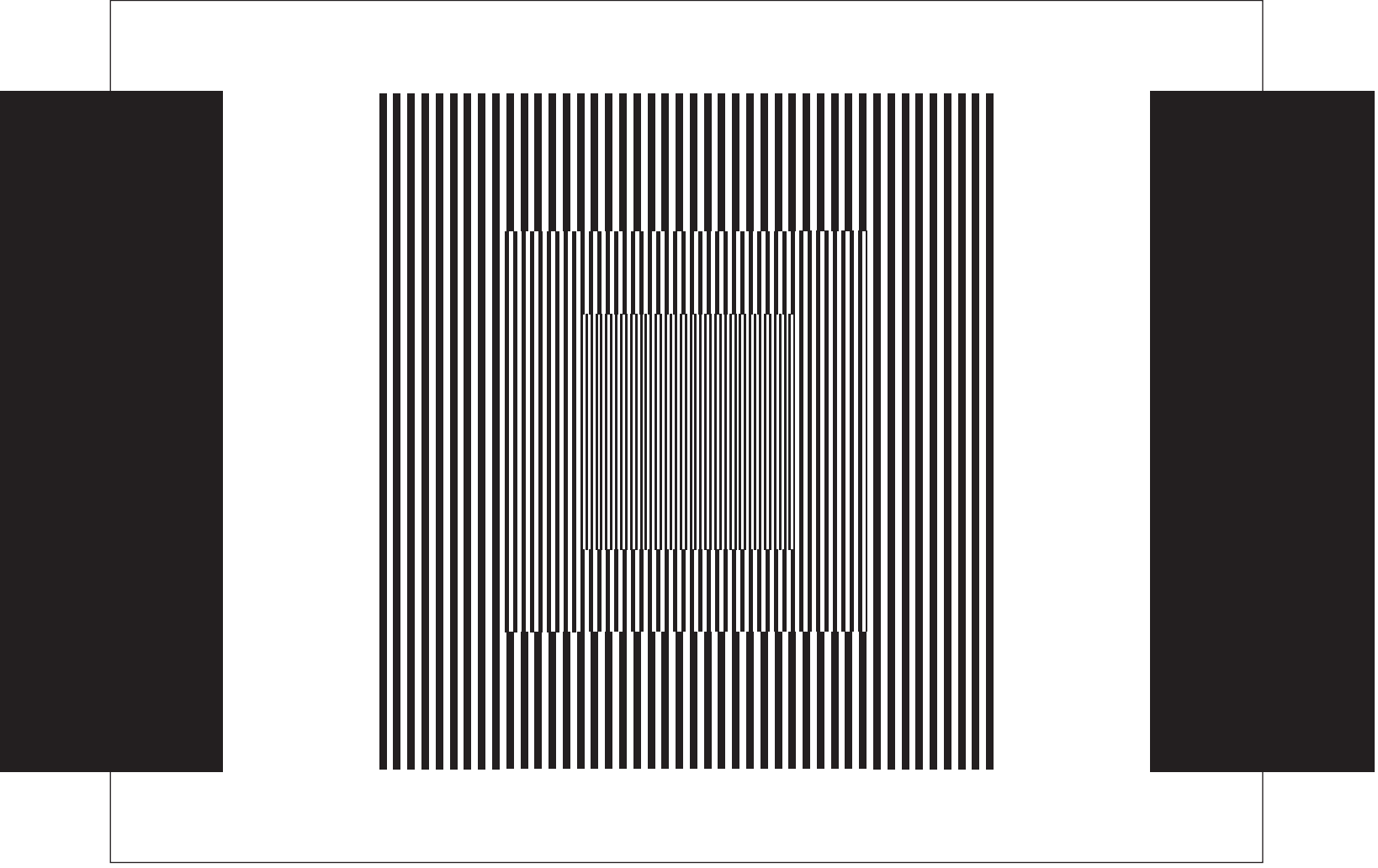
<A3 size>



 : Markings







Dimensions

